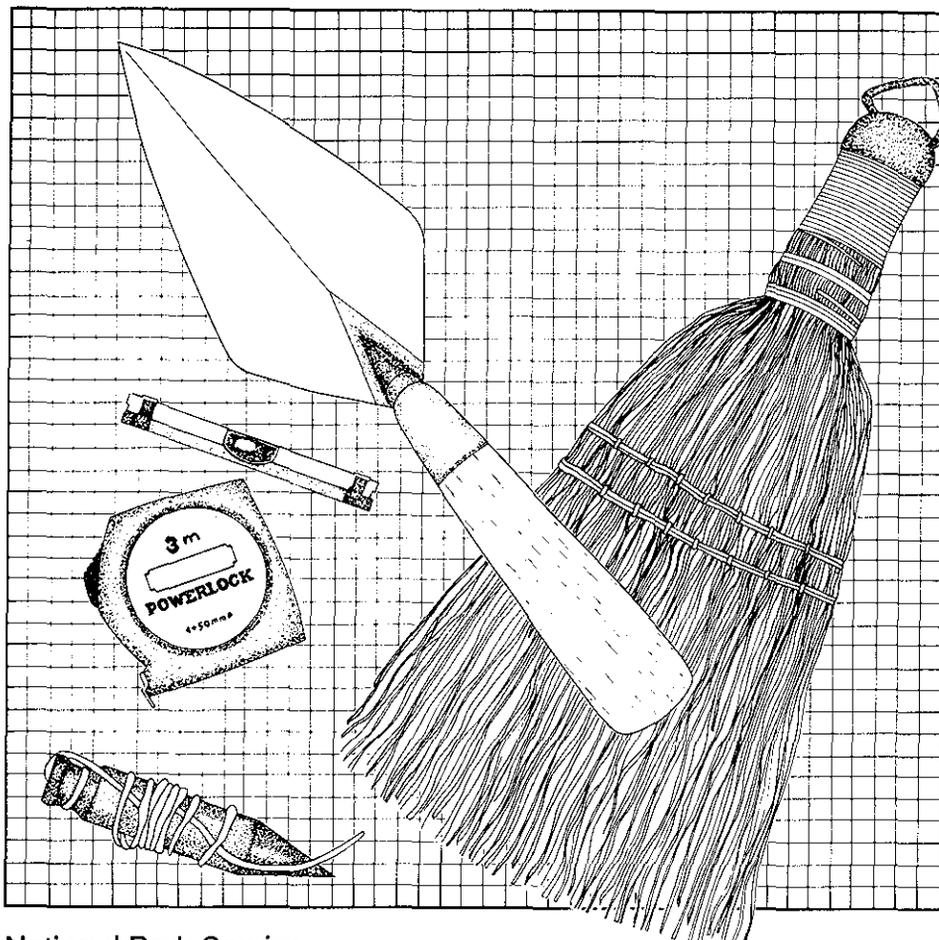


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ARCHEOLOGICAL EXCAVATIONS AT THE PLATTE  
RIVER CAMPGROUND SITE (20BZ16)  
SLEEPING BEAR DUNES NATIONAL LAKESHORE



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ARCHEOLOGICAL EXCAVATIONS AT THE PLATTE  
RIVER CAMPGROUND SITE (20BZ16),  
SLEEPING BEAR DUNES NATIONAL LAKESHORE,  
1987

By

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## ABSTRACT

The Platte River Campground archeological site (20BZ16) is located along the Platte River, within Sleeping Bear Dunes National Lakeshore, Michigan. The site was discovered in 1985 and was also tested in that year. In 1987, the Midwest Archeological Center conducted archeological excavations at the site in advance of a planned campground redevelopment program which will impact portions of the site. Important information on site age and artifact assemblages was obtained. The site is multi-component, with evidence of repeated prehistoric occupations over both the Middle and Late Woodland Periods in addition to late historic Euro-American uses. Emphasis in this report is placed upon the prehistoric components.

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## INTRODUCTION

This report documents extensive fieldwork at a multicomponent archeological site within the National Park Service's Platte River Campground at Sleeping Bear Dunes National Lakeshore. The Platte River Campground Site (20BZ16) was discovered during a preconstruction archeological survey by a Gilbert/Commonwealth Inc. survey team in 1985 (Gilbert/Commonwealth Inc. 1986). The site lies on the north bank of the Platte River, and extends 300 m north-northwest from the intersection of Michigan 22 and the Lake Michigan Road (Figure 1). The site has a maximum width of about 160 m. Artifact scatters which define the site are discontinuous across the total site area. Elevation across the site ranges from about 598 to 620 above mean sea level (amsl) (Figure 2). The area east and north of the site has considerable topography, while the site area is essentially flat. Limited topography is provided by an "L"-shaped dune near the center of the site, and by low rolling dunes at the north edge of the scatter. Most of the site deposit occurs on flat terrain at an elevation of about 598-600 feet amsl. The presence of pea gravel in the sandy soil of this landform indicates that it is a water-lain deposit which was probably formed during an early Lake Nipissing stage. Artifact yield from the dune ridges which rise slightly above the flat terrain was meager, at best, with most elevations above 600 feet being devoid of cultural material.

Large segments of the site occur within the western edge of the existing Platte River Campground. Site deposits occur in areas currently used for camping, day use, and maintenance activities. Only the northernmost portion of the site extends beyond the limits of the campground. Surprisingly, despite an over 50-year history of use of this area as a campground by state and federal owners, major portions of the site have remained relatively undisturbed. However, plans for expanding and extensively modifying the campground, including major changes in the road system, have been proposed by the National Park Service (NPS) in response to safety concerns and heavy visitor-use patterns (Figure 3). Implementation of these plans would result in adverse impacts to portions of the site, especially where new road alignments, parking areas, and various day-use facilities are proposed along the west edge of the campground. Extensive expansion of the campground to the east will have no impact on the archeological site. Since survey and evaluation of the site in 1985 revealed that the depositional integrity of potentially significant prehistoric Middle Woodland deposits were threatened by development, an archeological data-collection fieldwork project was initiated at the site in 1987 by the Midwest Archeological Center (MWAC). The results of that project are the focus for this report.

Fieldwork was conducted by a crew of eight MWAC Archeologists and Archeological Technicians from July 1 through August 18, 1987. This crew was augmented by volunteer labor throughout the project. The sandy site matrix was excavated and screened through 1/4-inch mesh hardware cloth. A total of 289 separate horizontal provenience units, usually 1 m x 1 m in extent, was hand excavated and screened, resulting in removal of 94.7 cu m of matrix within the site area. Excavation of three narrow backhoe trenches exposed an additional 24 sq m (12 cu m) of site

Woodland periods. There are clear limitations to the data recovered from the site, notably the lack of temporally and functionally diagnostic items from occupation features, and rather poor preservation and/or limited occurrence of ecofacts suitable for interpreting site subsistence activities. However, significant cultural deposits were identified through excavation. The presence of crushed ceramic vessels in datable contexts is uncommon for this area of Michigan, particularly for the Middle Woodland Period. Furthermore, the presence of in situ occupation features attests to the relatively undisturbed nature of the site, despite a long history of use of the area for camping activities. Finally, although diversity is limited, the artifact assemblage recovered from the site provides an excellent sample to contrast with other regional archeological assemblages. Based upon these and other factors, the MWAC prepared a National Register Nomination for the site. On April 27, 1990, the site was officially listed on the National Register of Historic Places.

## BACKGROUND

Discussions of Sleeping Bear Dunes National Lakeshore topographic setting, and geological and cultural history were presented in detail in the report of the 1974 and 1975 Michigan State University survey efforts (Lovis et al. 1976). Additional information on these topics has also been summarized in several reports of surveys of project development areas (Gilbert/Commonwealth Inc. 1985a, 1985b, 1986). Lovis (1984) has developed a very useful summary of the regional culture history. Information specific to site 20BZ16 was detailed in depth in the report of survey and testing of that site (Gilbert/Commonwealth Inc. 1986). Rather than reiterate in detail the environmental and cultural data presented in those reports, pertinent information is presented here in a more limited manner. Summaries of areal geology, soils, topography, flora, and fauna, leading to an understanding of the setting of site 20BZ16, are presented below. Greater detail is used to depict the conditions leading to the redevelopment project at the Platte River Campground. The methods and results of the 1985 Gilbert/Commonwealth survey and testing efforts at the site are described in detail. The results of that project helped shape the more extensive excavations at the site in 1987, which are the subject of the current report.

### Environmental Setting

#### Glacial Geology and Topography

The Sleeping Bear Dunes National Lakeshore area is underlain by two types of sedimentary rock: an undifferentiated limestone (Traverse series) of Devonian age, and an overlying stratum of shales (Antrim) of late Devonian and early Mississippian age. The Antrim shales have very limited distribution in the National Lakeshore, while the Traverse limestones are widely distributed.

The current topography of the Lakeshore reflects the last phase of Wisconsinan glaciation and various post-glacial lake level fluctuations. The retreat of the Gary substage produced a major ground moraine east and south of Grand Traverse Bay, known as the Lake Border morainic system. The last major advance of the ice sheet, the Port Huron substage, formed the Port Huron moraine. When this sheet retreated, a large outwash area was created between the Lake Border and Port Huron moraines. This outwash formed the Little Manistee River valley. The last advance of the ice sheet during the Valdres substage did not move as far south as the Port Huron lobe. The moraine formed by this advance extends around the southern end of Grand Traverse Bay through Leelanau County and along the present Lake Michigan shoreline of Benzie and Manistee Counties. This moraine forms one of the major topographic features in the area of the National Lakeshore. During the Valdres retreat, various ground moraines were built up in what is now Leelanau County. Many of these are visible as drumlins whose long axes are aligned with the direction of ice flow.

to the current level of 580 feet amsl by 2,500 years ago. On the mainland area of Sleeping Bear Dunes, the Algoma beach is poorly defined.

While the pattern of lake level changes outlined above has been the generally accepted model for many years, recent research has indicated that the lake levels were actually somewhat different from what has been traditionally accepted. Larsen (1978, 1985a, 1985b) has determined that an early phase of Lake Nipissing (circa 4500 B.P.) stood at 599.6 feet, while a lower Nipissing level of 591.1 feet was reached about 4000 B.P. These lake level elevations are considerably lower than the traditional model, and suggest that the immediate area of site 20BZ16 may not have been inundated after 4000 B.P. Larsen places the Algoma level at a maximum of 586.5 amsl at about 3200 B.P. Of equal importance is Larsen's observation that lake levels may have fluctuated from one to two meters higher than the historic mean of about 580 (up to 586.5) between 1600 and 1200 B.P., 950 and 750 B.P., and 450 and 150 B.P. The Platte River Campground site was occupied over much of the period when these fluctuations in modern lake level occurred. During those high-water episodes, the lower elevations of the site would have been about 10 feet above lake level. Following either traditional or modern models, the landform containing site 20BZ16 would have been available for occupation after about 4000 B.P.

### Soils

There is limited variability in the soils within the National Lakeshore. In general, the soils consist of relatively thin bands of humus and weathering zones on sand deposits. These sands are often underlain by till or lake-derived sediments resulting from the glacial and postglacial actions summarized above. In some low lying areas of the National Lakeshore, muck and organic peat deposits are present. In active dune settings, the sands reflect little evidence of weathering or organic build-up. Particle size analyses of soil samples taken from site 20BZ16 in 1987 clearly demonstrate that the soil, which exhibits relatively deep zones of weathering and accumulation of leached iron and other materials, consists almost entirely of sand size constituents. Within the Platte River Campground, the dominant soil association appears to be the Deer Park Series, a soil type which occurs commonly on wooded dunes. Although this association is defined as a "recent" soil, with only the beginning of soil genesis on unconsolidated parent material, a profile cut into one of the low dunes in the current campground revealed the stratigraphic profile of a rather well developed soil. There, the stained soil B horizon extended well below one meter from the ground surface. More specific data regarding the soils encountered at 20BZ16 are presented in the RESULTS section of this report.

### Vegetation

The project area falls within a major transition zone, or edge, between biotic provinces. Elements of the Canadian Biotic Province to the north, and the Carolinian Biotic Province to the south are distributed within the National Lakeshore. The

Mid-nineteenth century survey notes indicate that the site area was vegetated with an overstory of white and red pine, white and black oak, with occasional jack pines and maples. This association is quite similar to the uncleared areas around the site today. Within a very short distance of the site, several generally similar communities occurred. Five other forest communities were less than 1/2-mile distant. Perhaps more significantly, several marshes were in close proximity to the site and offered a variety of plant and animal resources. Of course, the site is directly associated with the clear waters of the Platte River, and is near a variety of interior lakes and the Lake Michigan shoreline.

## Fauna

The transitional nature of the plant communities, combined with the numerous lakes in the project area, provided a variety of habitats for mammals, fish, and birds. The project area provides the southernmost home for 16 northern species, and the northernmost limits for 17 southern species. The fauna for this zone have been documented elsewhere (Cleland 1966), and will not be repeated here. Clearly, a wide variety of mammals would have been available to native inhabitants. In terms of avian fauna, the position of the National Lakeshore along a segment of the Mississippi flyway greatly enhanced opportunities for taking a variety of birds. Further, the beech forests provided important feeding grounds for the enormous flocks of passenger pigeons which were known to nest and feed in the area.

The spring of 1860 came in nice and warm . . . I remember as the weather began to warm up and the snow was gone in spots in the woods that the wild pigeons began to come north, looking for feed (beechnuts) till the woods were full of them and the trees were fairly blue with pigeons. Some days they would fly in great flocks so as to darken the sun the same as though it was cloudy, millions and millions of them. They were nice and trim looking little birds and splendid eating. They were easy to kill so we had plenty of fresh meat as long as they were around, which was the greater part of spring and summer (Slyfield 1912:4).

Slyfield (1912:18) provides a detailed account of netting passenger pigeons as they flew to their feeding grounds from their nesting area in a marsh on the Betsie River near Frankfort in 1874. This predated the commercial exploitation of pigeons in this area. The morning flight of the female birds from this single nesting flock would last about three hours as they traveled to their feeding sites. In a single seven-week season, Slyfield killed and shipped "800 dozen" pigeons (Slyfield 1912:18). Others were sold live (\$1.25 per dozen) on the local market. Since this was only one flock of many local ones, the total number of birds in the region must have been very large prior to intensive exploitation. By 1880 the commercial hunters had wiped out the local nesting grounds, and only scattered birds remained. The example of the passenger pigeon is the most striking case of changes in faunal densities in the area through the era of Euro-

discovery methodology, intervals were very widely spaced (50-yard intervals along 50-yard transects). Further, shovel testing was unevenly applied due to private land inholdings and other concerns. Given the wide spacing between shovel tests, and the rather limited areal application of shovel testing within the entire project area, the survey resulted in reconnaissance level rather than intensive and complete coverage of the Lakeshore. The Michigan State team reported that the results of the survey were "generally disappointing" (Lovis et al. 1976:49). A total of seven prehistoric sites and a single historic site was discovered and/or relocated. The sites were located, as predicted by the model developed prior to survey, along old beach ridges, and/or adjacent to a variety of coastal resources in raised, well-drained settings. Sites discovered on South Manitou Island appeared to have the greatest research potential of the small prehistoric site inventory recorded during the survey.

Although limited test excavations were initiated at a few of the sites, the significance of the sites relative to potential for nomination to the National Register of Historic Places was not specifically assessed. However, the team made recommendations for further research at both the sites discovered during the survey and those recorded during Cleland's survey of North Manitou Island. The team suggested that no further work be undertaken at sites 20LU26, 20LU27, 20LU28, 20LU29, 20LU35, 20LU40, 20LU41, or 20LU42. These sites were all deemed to have low potential for providing useful data on prehistory. Although significance was not specifically addressed in terms of the National Register of Historic Places, it is clear that the Michigan State team determined that the above eight sites were not eligible for nomination to the National Register. Conversely, prehistoric sites 20LU24, 20LU25, 20LU30, 20LU36, 20LU37, 20LU38, and the historic Aral town site were all recommended for various levels of additional investigation, ranging from mapping (Aral), to limited test excavations (e.g., 20LU36), and extensive excavation (20LU38). It appeared that all of these sites might qualify for the National Register, but additional site evaluative efforts would be required before their significance could be confirmed.

Not surprisingly, additional sites have been discovered within the National Lakeshore subsequent to the park-wide reconnaissance survey. Perhaps the most important is one of two prehistoric sites recorded since 1976. This significant prehistoric site, 20BZ16, which is the focus for the current report, was recorded within the western portion of the Platte River campground during a preconstruction archeological survey in 1985 (Gilbert/Commonwealth Inc. 1986). Information regarding the 1985 archeological investigation at the site is presented in a later section of this Chapter. The combined 1985 and 1987 projects at this site have yielded a material culture data set far in excess of the combined previous projects from all other prehistoric sites within the National Lakeshore. Intact features, midden deposits, crushed ceramic vessels, and a large chipped stone assemblage have been recovered from the site. In addition, evidence for two distinct historic Euro-American occupation sites dating to the late nineteenth and early twentieth centuries was discovered. That this large and significant site was not discovered during the 1975 mainland reconnaissance survey effort, despite being located

is the only site to be listed on the National Register. Needs for archeological research at Sleeping Bear Dunes National Lakeshore include expanding survey coverage for prehistoric archeological sites, and more fully evaluating the significance of the current site inventory.

Data on historic sites within the National Lakeshore are less well developed than for prehistoric sites, even though there is ample evidence for the presence of a very large and diverse range of historic archeological resources. Additional survey and site evaluation efforts are required to document this resource base.

#### Platte River Campground Redevelopment Project

As the numbers of visitors increased at Sleeping Bear Dunes National Lakeshore during the early 1980s, the need for improvement of the popular Platte River Campground was recognized. The area had served as a State of Michigan campground since the early years of the twentieth century until acquisition by the NPS. Although many changes had been made to the campground by the State of Michigan and later by the NPS, the facilities were no longer adequate to meet visitor needs, traffic flow, or safety concerns. By 1985, plans for restoration of the Platte River Campground had been formalized, and preliminary construction drawings had been developed for the project. The restoration and expansion project would involve considerable ground disturbance in the form of new construction including: a new alignment for the initial 230 m of the Lake Michigan Road, several new campground loops, new campground roads, parking, upgrading of utilities, abandonment and removal of unneeded campground roads, new picnic area developments, a maintenance facility, extensive landscaping, and installation of other visitor facilities including restrooms (Figure 3). Since there was no direct evidence that the specific project area had ever been surveyed for the presence of cultural resources, and given the extensive amount of ground disturbance which would accompany development, the MWAC recommended that an intensive archeological survey of the entire proposed development area be undertaken.

The MWAC contracted (PX-6000-4-0103) with Gilbert/Commonwealth Inc. to conduct an archeological survey of the entire project area, including existing and proposed facilities (Gilbert/Commonwealth Inc. 1986). The survey was conducted across an approximate 90-acre area in 1985. The initial survey and limited site evaluative testing were conducted over a 14-day span in May and June, 1985. The primary field technique was interval shovel testing. Shovel tests were excavated in a 15-meter grid pattern across the entire project area. Intervals were altered in some areas due to disturbance of the original ground surface by development (Gilbert/Commonwealth Inc. 1986:30). A total of 1,490 shovel tests was excavated across the project area. Additional, closer interval shovel testing was then initiated in areas where cultural remains had been discovered through the initial survey effort. As a final component of the initial site survey phase of fieldwork, two 1-m-sq test excavation units were opened. These units were placed at locations where dense artifact accumulations were found

ascription to the type Green Point Rocker Stamped should prove incorrect. Its association is apparently strongest with southern Michigan's Havana-derived Middle Woodland manifestations. The decoration suggests that it may date to the later portion of the Middle Woodland period, circa A.D. 300 - 500.

Hopewell-related Middle Woodland materials have been encountered rarely in the region near Sleeping Bear Dunes National Lakeshore. The strongest similarity to Vessel 1 is a fragmentary vessel from the Portage site in Petoskey (Gilbert/Commonwealth Inc. 1986:62). Other Middle Woodland materials from the Pine River Channel site in Charlevoix (Holman 1978), the Holtz site in Antrim County (Lovis 1971), and the Round Lake site in Antrim County (Gillis 1964) bear some resemblances to Vessel 1, but none match it well.

The remaining sherds from site 20BZ16 could not be confidently associated with any identified ceramic types. Both smooth and cord marked body sherds are represented. It was assumed that at least the smoothed sherds reflect a Middle Woodland association. There was little evidence for prehistoric occupation, of site 20BZ16 other than Middle Woodland, from the available lithic and ceramic assemblages. The Gilbert/Commonwealth report strongly suggested that the site is the result of a single component Middle Woodland occupation. Unfortunately, no absolute dates were available to further refine site temporal placement.

In addition to the prehistoric component recorded at 20BZ16, an historic component was also recorded in locus G/C 9 (Gilbert/Commonwealth Inc. 1986:69). At that location the earthen embankment from a former structure was recorded along with a scatter of artifacts which appears to date to circa 1900. This site component was not deemed significant by the Gilbert/Commonwealth team.

As a result of the 1985 fieldwork, it was reported that the prehistoric component of the site was a major discovery for the area. The relative scarcity of Hopewell-related Middle Woodland sites in the region lends considerable significance to the site. The authors were especially impressed with what they interpreted as the single component nature of the site. This factor led them to conclude that site 20BZ16 is of a type extremely rare in the northern Michigan area (Gilbert/Commonwealth Inc. 1986:71). The recovery of a partially reconstructible rocker stamped ceramic vessel was deemed equally unusual for the area. Based upon this information, it was determined that the site would be eligible for inclusion on the National Register of Historic Places. Of concern to the Gilbert/Commonwealth team were the direct and indirect impacts of the proposed campground redevelopment project which would likely adversely effect the intact portions of the site (Figure 5). While a conservation and/or preservation approach to the site was recognized as the preferred treatment, a realization that the campground restoration project would likely take precedent over in situ preservation led the team to recommend a program of site excavation prior to campground construction (Gilbert/Commonwealth Inc. 1986:74). NPS management agreed with the recommenda-

## PROJECT METHODS

In this section of the report the field and laboratory methods applied to the 1987 Platte River Campground excavation project are presented. Extensive excavation (about 311 sq m) was undertaken at the site in 1987, and analysis and cataloging of the recovered artifact assemblage was accomplished between fall 1987 and early spring 1990. Although diversity in the artifact assemblage is not great, the large numbers of materials recovered (particularly lithic debitage) led to extensive analytical and curatorial efforts.

### Field Methods

Prior to fieldwork, it was anticipated that all but the northwestern portion of the site, west of the Lake Michigan Road, would be adversely impacted to varying degrees by future campground development actions. However, changes in the positioning of some of the proposed developments (e.g., maintenance facility and access road) were formalized in July, 1987, as fieldwork was underway. These changes greatly reduced future impact to the northern and northeastern portions of the site. Since that area is outside the existing campground, and receives little use, the site deposit occurring in the area is in a good state of preservation. The cultural deposit is buffered from the current ground surface by a thick humus layer. Changes in the campground project configuration were developed early in the field season, so it was possible to alter the excavation strategy and shift emphasis to other areas where impacts are still anticipated to be extensive. With the exception of this modification, the 1987 archeological work plan was implemented as originally designed.

Fieldwork was undertaken within five-day work-weeks during an eight-week period beginning June 29, and ending August 21. Thirty-four days were expended conducting fieldwork at the site. Four days were used for travel, and one Federal holiday was observed. Two field days were utilized to process soil flotation samples and conduct other laboratory activities. Unusually warm and dry weather throughout the summer resulted in little time lost to rain, and those brief periods were utilized in conducting lab work. A total of 287.1 sq m was hand excavated at the site during 34 work days by an eight-person crew. An additional 24 sq m were excavated in three trenches by backhoe to expose site stratigraphy and to determine if cultural deposits extend under gravel campground roads and parking areas. The combined hand and backhoe excavated units total about 311.1 sq m of excavated site area. The MWAC field crew was supplemented by volunteers who contributed about 30 person-days field labor. Nearly 1 sq m was excavated per person-day of fieldwork, which met the excavation coverage goal set in the work plan. It had initially been estimated that 320 sq m could be excavated, but that was based upon 40 days of fieldwork, rather than the 34 actually accomplished.

The 287.1 sq m of hand excavation was accomplished within 289 separate horizontal provenience units (Figure 6). These proveniences were maintained in a grid system (Table 1). The axis was situated so that all excavated units occurred in the

site boundary are completely devoid of cultural material. Some areas were apparently not intensively utilized prehistorically, while others have been significantly disturbed through historic land uses. Areas containing intact features and diagnostic artifact assemblages were afforded much higher excavation coverage than suggested by the two percent figure.

Prior to fieldwork, it was proposed that excavation focus in two areas of the site where the majority of adverse impacts from campground and picnic area redevelopment were anticipated. These two areas encompass the portion of the site east of the Lake Michigan Road. Area 1 includes those portions within the western edge of the current campground, and the forested area to the north. Extensive adverse impacts from road realignment and maintenance facility construction were anticipated in that area. As described above, alterations in the proposed position for the maintenance facility eliminated all anticipated adverse impacts to site deposits north of the existing campground maintenance building. Area 2 consists of the existing picnic/day-use area at the southern portion of the site. There, extensive changes in road alignments, parking, utilities, and other picnic area modifications are anticipated. Area 3 consists of the portion west of the Lake Michigan Road. Little, if any, impact from development is expected to occur there. Area 4 was defined during fieldwork when limited excavation east of the campground entrance road revealed that the site deposit extended further east than had been determined through the 1985 Gilbert/Commonwealth Inc. survey and evaluation project. That area, which is in the vicinity of the existing ranger contact station, will be extensively impacted by construction of the new alignment for the Lake Michigan Road.

#### Area 1

Area 1 was the original focus for excavations in 1987 (Figure 7). Work was initiated in the deciduous forest north of the current NPS maintenance building, away from the intensively utilized campground area to the south (Figure 8). This northern edge of the site was selected for initial excavation for three reasons. First, the original development plan called for construction of a road and maintenance area which would directly impact a large portion of the site in that area. Second, the existing forest cover indicated that this area has been subject to few adverse impacts from historic land use and should serve as a useful baseline for assessing impacts to other portions of the site. Third, it was deemed important to develop field methods in the relatively "isolated" wooded portion of the site, before working in the intensively utilized campground and picnic areas to the south. The effectiveness of this approach was underscored later in the project when large numbers of visitors observed our fieldwork each day.

As excavation progressed in the northern portion of Area 1, project planners selected a new location for the proposed maintenance area and associated road. The new location is well north of site 20BZ16, thus reducing future impact to the site dramatically. By the time that decision was made, about 34 sq m had been excavated

of Area 1 slated for future development were sampled, with two dense cultural deposits being investigated through approximately 15 - 20 percent excavation coverage.

## Area 2

Area 2, the existing picnic area, was the focus for two block excavations, and numerous additional 1 m x 1 m units which were spaced across the remaining undisturbed areas (Figure 12). The picnic area can be divided into two portions, reflecting road configuration and day-use activities. The northern area is confined within a gravel road loop south and east of the current fish-cleaning station (Figure 13). There, fifty-five 1 m x 1 m units were excavated, including 29 in a single rectangular block. In addition, a 7-m x 1 m backhoe trench (Backhoe Trench 1) was excavated through a gravel road to determine if cultural deposits remained intact under the road.

The southern portion of the picnic area, bounded by Michigan 22 and a gravel campground road, was intensively sampled (Figure 14). In this area, previous site testing had revealed the presence of significant Middle Woodland deposits, including discovery of over 1,200 fragments from a single rocker stamp decorated vessel (Gilbert/Commonwealth Inc. 1986). Future development of day-use facilities will be extensive in the picnic area. In addition to development of numerous individual picnic sites, landscaping and other actions will be focused there. As fieldwork was undertaken, the specific configuration of the picnic area developments had not been formalized. Approximately 1,500 sq m of site deposit remains in the area. Sixty-three sq m were excavated, including 27 sq m excavated in a single block in the most dense portion of the cultural deposit.

A total of 118 sq m was excavated within Area 2, which is considerably less than the 175 sq m proposed in the Work Plan. However, the actual sampling level was greater than had been proposed, since it now can be demonstrated that nearly half of the current picnic area is either disturbed through twentieth century land use, and/or does not contain significant cultural deposits. Excavation coverage of intact cultural deposits in Area 2 approaches five percent. Since much of Area 2 (and the remainder of the site) consists of a sparse scatter of material, the excavation of two blocks of units in the most dense cultural deposits has actually provided relatively large samples of site features and artifacts.

## Area 3

Area 3 consists of the portion of the site west of the Lake Michigan Road (Figures 15 and 16). This area was not intensively sampled in 1987. Area 3 was thought to constitute a large (about 30 percent) and significant portion of the site which was not threatened through proposed development actions. Therefore, no attempt was made to conduct extensive excavation of the area. Prior to fieldwork, it was hoped that approximately 25 sq m could be excavated, but 1987 coverage was limited to 16 sq m.

were removed and stored separately. The remaining debitage was then washed, air dried, and repackaged in clear plastic self-closing bags. Catalog/provenience cards containing all excavation provenience data were labeled and placed in the bags. Roughly similar processing steps were initiated for all the other tool classes. Some variance in processing was followed for morphological lithic tools and ceramic sherds. Neither of these artifact classes were washed prior to being placed in self-closing bags. The lithic tools were not washed since it was anticipated that blood residue or other studies might be applied to the tools at a later date. The lack of washing of the ceramic sherds was an even more practical decision, owing to the friable condition of most of the sherds. Further, the sandy site matrix could be easily removed from the sherds through brushing with soft bristle brushes. Primarily, the poor condition of many of the sherds indicated that minimal cleaning would aid in their preservation.

Lithic Debitage. Lithic debitage constitutes the largest assemblage of prehistoric artifacts recovered during 1987 excavations at 20BZ16. Therefore, curation, cataloging, and analysis of this assemblage required considerable efforts. After the initial sorting, washing, and packaging of the materials, the debitage was examined by each excavated level of each horizontal provenience. The debitage was divided into two subgroups reflecting technological attributes. One group consists of flakes and the other includes all non-diagnostic shatter.

Flakes. Flakes include all debitage which maintains a clear striking platform reflecting the surface where pressure or percussion was applied to the parent material in detaching the item. Most flakes also exhibited bulbs of percussion on their ventral surfaces from the force applied during detachment. Typically, the flakes are thin in cross section, with sharp edges. Flakes with edges modified through purposeful retouch were separated from the unmodified flakes and examined as tools. The flake group includes both complete specimens and proximal fragments. Distal fragments, which by definition lack evidence of a striking platform, were included with non-diagnostic shatter.

Fourteen variables were recorded for each flake. The *year* and *site* variables are self explanatory. The *catalog number* variable refers to the field provenience code which was applied to each unique excavated provenience. This variable does not reflect the number awarded during the Automated National Catalog procedure. *Flake type* reflects condition of the flake, either complete, or proximal fragment. *Dorsal cortex* is a measure of the amount of cortex remaining on the surface of the flake. *Platform type* records the morphology of the platform. This variable has considerable utility in determining the stage of reduction represented by the flake, especially when examined in conjunction with other variables including *dorsal cortex* and *dorsal scars*. "*Potlid*" refers to damage induced to the flake through application of heat. "Potlids" are small, often roughly circular, fragments that spall from the dorsal or ventral surface due to heating. *Length*, *width*, and *thickness* are metric variables which are recorded to the nearest 0.1 mm. Length is measured for complete flakes only as the maximum measurement perpendicular to the striking platform. Width is measured as the maximum

1980a, 1980b; Salzer and Overstreet 1976) and the world (Boksenbaum 1980; Dickson 1977; Flenniken 1980, 1981; Shott 1989; Vanderwal 1977).

While most of the variables recorded for cores are self-explanatory, some expansion is needed for select variables. *Length* is measured parallel with the flake scars from the opposed platforms (the distance between the two platforms) of the bipolar cores, and perpendicular to the main platform on the other cores. *Width* is the greatest dimension measured perpendicular to the length. Since many bipolar cores have a flattened configuration with two faces from which flakes are detached, *thickness* is normally measured as the cross section from one face to the other. This measure is perpendicular to width. For all cores, raw material was identified, amount of cortex was observed, form (beach pebble/cobble versus quarry source) was recorded, and number of flake scars was counted. In addition, the number and configuration of striking platforms was recorded for each core.

Tools. Compared with the large sample of debitage, a relatively small sample of formal chipped stone tools was recovered from the site. Only 64 bifacial tools and 37 unifacial tools were identified within the very large chipped stone assemblage. Bifaces were subdivided into bifaces and projectile points, based upon the presence or absence of hafting elements. For each bifacial tool a series of variables was recorded. Provenience was recorded in three fields representing horizontal grid coordinates and vertical excavation level. These variables were recorded for all of the artifacts tabulated through computer programs. In addition, feature association was recorded as a separate variable. Unfortunately, only two tools were found directly associated with features. Length, width, and thickness were recorded for all complete bifaces. Where the specimens were fragmentary, measurements were taken only on complete dimensions. As a measure of completeness, the portion present was recorded as complete, proximal, distal, lateral, or medial. As for all of the flakes, raw material was also coded as a numerical code representing identified lithic types. Variability in raw material types for bifaces was rather limited, with Norwood, Cordell, and various till cherts dominating the assemblage. For the projectile points, an additional variable of hafting element was recorded. Stemmed bases were recorded as straight, expanding or contracting, and notched bases were recorded as corner or side notched, with "missing" and "none" also recognized as potential values.

Unifacial tools were recorded in a format similar to bifaces, with the provenience and metric variables matching those recorded for bifaces. In addition, their form was recorded as irregular or regular, and the location of retouch was recorded as distal, right, left, and total.

### Ceramic Artifact Analysis

A total of 2,031 prehistoric ceramic sherds was recovered from excavations at 20BZ16 in 1987. Unfortunately, the friable nature of the paste used for most of the

All fire-cracked rocks from non-feature proveniences were counted, weighed, and discarded in the field. Those totals are presented in the RESULTS section of the report. No additional analyses were conducted on the fire-cracked rocks from the site.

## RESULTS

As expected, hand excavation and 1/4-inch mesh screening of matrix from approximately 287 sq m revealed a pattern of several dense artifact scatters, and intervening sparse, or culturally sterile areas across the approximately 36,000 sq m encompassed by the site. However, the number and location of scatters were somewhat different than had been expected, based upon previous test excavations. These included rather dense artifact scatters and cultural features northwest, west, and south of the maintenance building in Area 1, and the small, but significant, deposit in Area 4 adjacent to the Contact Station. Included in the Area 1 scatters is a deposit in Campsite 13 where a crushed ceramic vessel was recovered. Previous testing had indicated that the central portion of the site had only very sparse cultural remains. The recovery of relatively large numbers of artifacts and features from two scatters in Area 2, and throughout Area 3 was expected, based upon previous testing. Although significant adverse impacts on archeological deposits from the long history of management and use of the campground were recorded in 1987, surprisingly large portions of the site were found to be completely, or relatively, undisturbed.

Large numbers of artifacts were recovered during the excavations, particularly within chipped stone and fire-cracked rock classes. Formal chipped stone tools are relatively few in number, with an average density of only about one tool per 2.9 sq m of area excavated. However, large amounts of chipped stone debitage were recovered during the excavations. Fire-cracked rock was very numerous, with approximately one ton recovered from excavations. The ceramic inventory from 1987 is not exceptionally large, but contains important new information relative to the multicomponent nature of the site which was not anticipated prior to excavation. Other artifact and ecofact totals are quite small, with a generally expected but still disappointing yield of faunal and floral remains. Perhaps more importantly, numerous features were recorded across nearly all portions of the site. Variability within these features was quite limited, with most of the recognized features representing various configurations of fire-cracked rock accumulations.

Despite the limitations noted above, the site yielded a variety of data to further the interpretation of the nature and age of the occupations which formed it. In the sections which follow, the results of the 1987 excavation and subsequent laboratory analyses are presented. Data are summarized regarding soils, stratigraphy, state of preservation, and occupational features in the first section. That is followed with presentation of information on the various classes of recovered artifacts and ecofacts. In the last section, the results of the investigations are summarized.

### Soil and Stratigraphy

The typical soil profile exposed at the site consisted of an E horizon of black humus (10YR2/1) overlying light brownish gray (10YR6/2) sand (Figure 19). Thickness

northern block excavation in Area 2 were similarly capped with sterile fill which protected a dense prehistoric scatter in the underlying brownish gray sand horizon.

In certain areas of the site, the natural soil profile was completely interrupted by recent campground-related activities. The construction and removal of buildings at the eastern edge of Area 2 severely disturbed the natural profile in that area, removing in the process any evidence for prehistoric occupation. Areas immediately adjacent to the Maintenance building were found to be similarly disturbed. Despite these and other localized disturbances throughout the site area, the natural soil profile was found to be intact in large areas of the site, even where intensive camping activities have occurred over many years.

In order to further examine the character of the soil at site 20BZ16, a series of soil samples was collected during the project. Samples were taken from the wall profile of an undisturbed unit located in the northern portion of the site, outside the campground activity area. In addition, soil samples were retained for each of the 44 flotation samples recovered from site features. Samples were collected in this manner from all site features except numbers 4, 6, 8, 11, and 26. Twenty-nine features were recorded in 1987. With the exception of Feature 4, which has been interpreted as a modern camper's hearth, the remainder of the features not subjected to flotation and soil sampling were fire-cracked rock clusters which had little or no soil matrix within them. Flotation and soil samples were recovered from in and/or around all the remaining site features. Finally, soil samples were recovered in intervals from the deep profile (1.8 m) exposed during excavation of Backhoe Trench 3.

From the large number of potential samples for processing, 13 were selected for both chemical and particle size analyses. These include a representative vertical series of nine samples from Backhoe Trench 3. This trench was cut into the edge of a sand dune. Four additional samples were processed from Features 5, 12, 14, and 22. Features 5 and 12 are crushed prehistoric ceramic vessels, while Features 14 and 22 are basin-shaped soil stains. The results of testing are summarized in Table 2. In terms of soil texture and particle size constituents, the results are quite consistent. The soil samples are all dominated by sand size particles, which range from 91.44 to 95.61 percent of the total constituents of each sample. Very small amounts of fine and very fine silt are present in most of the samples, while clay size particles are present in each sample in percentages ranging from 2.88 to 5.56. There is no apparent variation in the soil constituents, either vertically within the backhoe trench, or horizontally across the site as evidenced from the samples from site features in Areas 2 and 3. All of the soil samples are classified by the textural class name "sand."

Results of chemical testing showed slightly more variation than did the textural results, but were still relatively uniform. A rather surprising range in soil pH values was recorded. Soil pH values ranged from neutral (7.03) at 10 cm below surface in Backhoe Trench 3, to acidic in Features 5 and 14 (5.83 - 5.43, respectively). However,

maintenance building are underground trenches containing various utility lines. There is also a small concrete and wood structure used to store debris from the campground, and a gravel road in this area. Despite all these disturbances, at least one-half of this area still contains significant and intact cultural deposits. Undisturbed fire-cracked rock features and dense artifact scatters with temporally and functionally diagnostic materials were found in close proximity to these modern structures. South and west of the maintenance building, 10-50 cm of fill has been placed over the original soil surface, effectively sealing and protecting prehistoric deposits. It appears likely that this fill, which also occurs in other areas of the site, was deposited during the 1950s or early 1960s. The importance of these fill episodes in protecting the site should not be underestimated.

The "L"-shaped sand ridge, which rises about 10 feet above the surrounding flat ground south of the maintenance building and immediately east of the Lake Michigan Road, has received considerable twentieth century use. Although the area is not currently the location for any camping or organized day-use activities, it was the original campsite during the early years of state management of the campground. An early map of the state-era campground depicts all camping activity limited to this topographic feature. Cultural material is very sparse in that area, and the humus is thin, or absent. The degree of impact upon cultural resources is not certain, but appears to have been relatively minimal, since the site scatter in that area is extremely diffuse. Very few of the several excavation units placed upon the dune ridge produced any cultural material. The near absence of cultural material on the dune follows a pattern revealed throughout the site, where the most dense occupational debris occurs on a flat landform at an elevation of about 598-600 feet amsl. The slightly higher ridges in the campground contain sparse or no cultural materials.

East of the sand ridge is a narrow flat area (vicinity of Campsite 13) which contains a significant cultural deposit. Two separate fill episodes have served to protect the cultural deposit in portions of that area. The humus has been partially truncated, and the upper portion of the soil (brownish gray E horizon) has been extensively compressed through years of vehicle parking and camping. Ceramic sherds have suffered from this compression, but the deposit is remarkably intact considering the intense level of use. Conditions for preservation in the undulating topography in the campground loop to the east are considerably worse, but even there, the original humus is thick and preserved over most of the area. Grading and flattening of campsites, installation of water lines, etc. have had adverse impacts, but the cultural deposit in the area is sparse, and it appears that little site integrity has been lost.

The current gravel roads appear to have been built on the original surface, or on fill, and Backhoe Trenches 2 and 3 revealed extensive intact soil zones under the roadways. Due to the compaction of the gravel and fill, and the heavy visitor use of the campground in 1987, these road areas were not investigated beyond exploratory

features and diagnostic artifacts was also recorded. The total extent of the disturbances (and cultural deposits) in Area 4 is not known, since dense poison ivy precluded hand excavation in much of the area. Since the proposed new alignment for the Lake Michigan Road intersects Area 4, future investigation of this area is warranted. The intact deposits lie outside the site as defined through survey and evaluation by the Gilbert/Commonwealth Inc. team. The flat bench extends south across M 22, and it is possible that the site deposit may also extend into that area.

### Artifact Patterning

Excavations revealed an interesting pattern of artifact distribution. All of the dense artifact scatters occur on level terrain at an elevation of about 598-600 feet amsl. Dense artifact scatters and intact cultural features were found in this setting at several locations across the site. Sand ridges and rolling topography within the remainder of the site area yielded only sparse scatters of debitage and fire-cracked rock, or were devoid of cultural material. Since existing roads and parking areas cover a considerable portion of the existing flat topography at the site, it is anticipated that some significant prehistoric deposits are present under these twentieth century features. The pattern of artifact distribution described above indicates that while the site scatters extend approximately 300 meters north-south along the east side of the Platte River, and over 100 meters in an east-west dimension, there are actually considerable areas within those greater dimensions where artifact density is minimal or zero.

The excavation of 311 sq m at the site in 1987 revealed that several distinct artifact scatters and clusters of features occur at the site. As might be expected, the site does not consist of a uniformly distributed scatter of cultural materials. To a large extent, the clustering of excavation units in Figure 6 depicts the locations of dense artifact scatters and feature locations across the site. This is due to an excavation strategy which emphasized collecting representative samples of archeological data from all sections of the site which would be the later focus for development activities. To some extent, the bisection of the site by campground roads and facilities may have shaped the apparent distribution of scatters. However, at least six of the scatters, and possibly more, appear to be the actual reflection of separate occupation/activity areas by the prehistoric inhabitants. Nine clusters, or dense scatters of artifacts, are recognized based upon the 1987 excavation program.

The nine clusters of excavation units, which reflect nine distinct artifact scatters, are depicted in Figure 21. Within Area 1 of the site, five analytical blocks have been defined. The scatters (1 - 5) within Area 1 reflect both prehistoric cultural refuse disposal patterns and recent alteration of the terrain. Scatter 1 is a rather dense and undisturbed lithic and fire-cracked rock accumulation on flat ground immediately east of the Lake Michigan Road. Many of the excavation units in the central and eastern portion of this scatter were devoid of cultural material, or contained only sparse artifacts.

under a recent fill zone which forms the current ground surface in the area. The area of this artifact scatter, and Scatter 4 are within the designated campsites of the Platte River Campground. The new campground design will remove camping from this area, but will create new facilities, including parking areas and a realigned Lake Michigan Road.

Scatter 6 is an important deposit in the northern portion of Area 2. A large block was excavated in this scatter. A very dense accumulation of chipped stone debitage and a few ceramic sherds were recovered along with large quantities of fire-cracked rock. Several distinct fire-cracked rock features were identified within the block excavation. The scatter decreases in density towards the east. The area is flat, and occurs at the 598-foot contour. Similar to Area 5, most of the scatter is sealed under recent soil fill. Here, two distinct fill episodes were identified. Scatter 6 is in a portion of the campground used for picnic activities. Proposed future use has not been specifically designed, but apparently the area will continue to be used for picnic and day-use activities.

Scatter 7 is within the southern portion of Area 2, also within an area currently used for picnic and day-use activities. In addition to being separated from Area 6 by a gravel campground road, artifact density decreases dramatically south of the road. A dense scatter of artifacts occurs further to the south on flat ground where a large block excavation was opened in 1987. It was in this area where Gilbert/Commonwealth Inc. recovered a large number of fragments from a rocker stamped Middle Woodland ceramic vessel in 1985. The intensive excavation in this area in 1987 yielded large samples of chipped stone materials, ceramic sherds, and fire-cracked rock. Several features were recorded, including various soil stains which were absent across the remainder of the site. In addition, an historic (late nineteenth and early twentieth century) component was also discovered in this area. The materials clearly reflect domestic activities, and were not recorded during site evaluation in 1985.

Scatter 8 was the least studied deposit at the site. It is on flat ground west of the Lake Michigan Road. It was there that the Gilbert/Commonwealth Inc. team discovered extremely dense accumulations of chipped stone debitage in a single test unit in 1987. The limited excavations there in 1987 produced similar results. Dense accumulations of chipped stone and fire-cracked rock are present in this area. Excavations were quite limited since the area will be outside the direct impact zone for campground and road rehabilitations and construction actions. As described above, much of the area has been plowed. The southernmost units showed evidence of considerable disturbance from activities such as vehicle traffic and grading. Only the three units in an "L"-shaped configuration at the north edge of the area yielded an undisturbed profile. There, a large well-preserved fire-cracked rock feature was discovered.

A second form of site feature was recorded for two crushed ceramic vessels. Feature 5 in Area 1 was defined for a Late Woodland vessel which was fragmented into a very large number of pieces (Figure 26). Vehicle traffic from parking at Campsite 13 appears to have contributed to the fragmentation of the vessel. The shallow depth of the vessel below the original ground surface was also a significant factor in the poor condition of the sherds. The placement of a zone of sterile fill over the campsite prior to NPS management of the campground was the single factor which protected the vessel from complete destruction. In Area 2, a crushed Middle Woodland vessel was recovered (Figure 27). This vessel was also in rather poor condition. While twentieth century picnic activities and nineteenth century occupation of the area certainly contributed to the fragmentation of the vessel, its friable paste and rather poor construction were also factors contributing to its extensive deterioration. Despite the high degree of fragmentation of the two vessels, they are significant resources which add considerably to the understanding of chronology of occupation of site 20BZ16.

While Feature 12 consisted solely of clusters of ceramic sherds, Feature 5 also included a small pit which contained both sherds and charred wood. With the exception of the sherds in the pit of Feature 5, the sherds in both features were scattered in a thin lens across several excavated units. The sherds were recovered by "cluster" proveniences which reflected spatially separated groupings of crushed sherds. Initially, it was hoped that the vessels could be partially reconstructed, but the fragments were found to be interspersed with numerous roots, and were often in sloughed and crumbling condition. It was decided that efforts at reconstruction would not prove effective due to the small size and poor condition of the sherds. Feature 5 yielded sufficient charred wood for Carbon-14 dating. (The results of this dating process are presented in a later section of the report.) No charcoal was associated with the vessel in Feature 12. Further, neither of the vessels exhibit burned food incrustations which could be used for dating purposes. Samples of both vessels were taken for potential thermoluminescence dating, but currently, there are no laboratories conducting such services on a fee basis. The vessel fragments recovered from Features 5 and 12 will be discussed further in a later section of this chapter.

The features recorded in 1987 at site 20BZ16 are overwhelmingly dominated by various fire-cracked rock concentrations. Fire-cracked rock was extremely dense at the site, and occurred in the fill of most of the units. For the most part, the rock was merely scattered evenly throughout the upper portion of the soil profile across the site. However, in several locations, the fire-cracked rock was clustered into distinct features. Two types of fire-cracked rock concentrations were recorded. The most common form was a horizontal lens of fire-cracked rock, which was tightly clustered and usually only the thickness of a single rock (Figures 28, 29, 30, and 31). Nine of these features were recorded. The dimensions and horizontal and vertical proveniences for each feature are tabulated in Table 3. The second form of fire-cracked rock feature consisted of a deep cluster, rather than a horizontal lens of rocks (Figures 32 and 33). The rocks appear to have filled pits in each of these deep features, but no evidence of pit outlines was

hearths or discard of the rocks after being used for other purposes. However, such a supposition is greatly weakened by the equal lack of charcoal in the deep fire-cracked rock features, where adjacent rocks occasionally could be articulated into single, complete pebbles or cobbles.

The four deep fire-cracked rock features were quite different from the lens-like accumulations in terms of shape. However, they shared the same important "negative" attribute of sparsity of associated artifactual material. Feature 1 is perhaps the best example of the latter form of feature. At that feature, a very distinct, tight cluster of rocks was excavated (Figures 32 and 33). A very large amount of fire-cracked rock was collected from the feature, which extended over 40 cm in vertical dimension. As the base of the feature was approached, the rocks became less fragmentary, and at the bottom of the feature, several complete cobbles were recovered. The feature may have functioned as a roasting pit, but the absence of charcoal and burned soil is difficult to explain. The rock must have been placed into a distinct pit, although currently, there is no evidence of soil differences within or adjacent to the feature. There is no evidence of a pit profile. Apparently, soil leaching has removed evidence of the pit.

With artifactual evidence from fire-cracked rock features limited to debitage, small amounts of charcoal, and four ceramic sherds, there is little associated material from which to determine the function of the fire-cracked rock features. A probable function would be stone boiling of food, possibly in birch or other perishable containers.

### Site Dating

While there is relatively little evidence for clear stratigraphic separation of cultural materials within the site, there is ample evidence to indicate that the site was occupied sporadically over a considerable time span (within A.D. 130-1269). This was not expected, since testing in 1985 seemed to indicate that the site might be single component, and date solely to the Middle Woodland period. Some suggestion of time depth is seen in the vertical position of cultural material within the soil profile. In a few areas of the site, ceramic sherds were found within the base and immediately below the humus zone. Most of these sherds appear to be of Late Woodland association. However, lithic debitage, tools, and fire-cracked rock were often recovered much deeper in the site, into the soil B horizon. Features, including large in situ clusters of fire-cracked rock, were found within the soil B horizon, with no evidence of pits above them. While the role that soil leaching may have played in masking stratigraphy at site occupation features is unclear, the consistent pattern of fire-cracked rock features and debitage scatters extending well into the soil profile suggests that these deeper deposits may be considerably older than the shallow, Late Woodland ceramic scatters. However, the lack of clear cultural stratification greatly inhibits efforts to separate site components based upon relative artifact depths. All the recovered artifacts occurred within the upper levels of the sandy soil profile, with no cultural material extending into the C horizon

the largest Carbon-14 sample collected, and derived from an area which is expected to be extensively disturbed by proposed road construction.

The four charcoal samples selected for Carbon-14 processing were submitted to Beta Analytic. All were subjected to extended counting (quadruple of normal time) in order to derive the most accurate age for the samples. The dates obtained from these samples confirm the multicomponent nature of the deposit as suggested from examination of the artifacts. The processing produced interesting results. One sample is from Feature 22 in the southern portion of Area 2, in Scatter 7. The prehistoric material within this rather dense scatter apparently dates to the Middle Woodland Period. However, this sample yielded a modern date (Beta 23111). The feature consisted of a soil stain, 12-22 cm below surface with no associated diagnostic artifacts. However, the feature contained numerous pieces of chipped stone debitage. The charcoal may relate to recent activities in the campground, or to early twentieth century occupation of this area, which is reflected in the presence of numerous late nineteenth and early twentieth century domestic artifacts. It is possible that the charcoal is a modern intrusion into a prehistoric feature.

Fortunately, better results were realized for the other three samples. The sample from Unit 350-351N/404-405W in Area 1, Scatter 2, yielded charcoal which dates A.D.  $860 \pm 40$  (Beta 23112). Although diagnostic artifacts were not directly associated with this sample, a straight stemmed projectile point was recovered in an adjacent unit. A charcoal sample from Area 1, Scatter 5 was directly associated with crushed ceramic Vessel 10 (Feature 5), and yielded a date of A.D.  $1120 \pm 40$  (Beta 23109). The sherds from this vessel extended only to about 20 cm below the original ground surface. The final date is derived from a basin-shaped soil stain (Feature 14) in the southern portion of Area 2 (Scatter 7) at a depth of 40-60 cm below surface. That charcoal sample dates to A.D.  $260 \pm 80$  (Beta 23110), which appears to accurately reflect the age of the Middle Woodland site component previously discovered in that area.

When the Carbon-14 dates are calibrated according to the most recent synthesis available using the CALIB program (Stuiver and Pearson 1986:805-833; Stuiver and Reimer 1986:1022-1030), the following ages were obtained at the 68 percent (one sigma) confidence interval using intercepts (Method A): A.D. 1169-1253 (Beta 23109); A.D. 894-991 (Beta 23112); and A.D. 244-425 (Beta 23110). Even at a more conservative 95 percent (two sigma) confidence interval, none of the date spans overlap. The probability distribution calibration technique (Method B) provides essentially equivalent results. All of these calibration methods are summarized in Table 4.

The dates confirm the multicomponent nature of the site suggested from the artifact types and distributions. It is clear from these samples that the site was subject to repeated, temporally separate occupations. These occupations spanned about 1,000 years during the Middle and Late Woodland Periods. The dates extend the interpretation of the site proposed after the site testing program (Gilbert/Commonwealth Inc.

## Material Culture

A total of 25,898 artifacts was recovered from site 20BZ16 in 1987 (Table 5). This total includes "accidentally" produced materials such as fire-cracked rock, but does not include charred floral remains or fauna. This equates to about 90 artifacts per sq m of hand excavated site area. On initial inspection, this reflects a rather high density of cultural materials. However, the total is greatly bolstered by fire-cracked rock, which, although an important by-product or primary constituent of cooking activities, does not reflect purposeful manufacture. This is in contrast to the other artifact types. Still, considerable efforts were required to collect the rock, transport it to the site, and alter it through application of heat. Chipped stone debitage is nearly as numerous as fire-cracked rock, although the weight and volume of the chipped stone is less than one percent of the fire-cracked rock. Within the large chipped stone assemblage, formal tools constitute less than one percent of the total. Ceramic sherds are well represented in the collection, although condition is often quite poor. Many of the sherds are very small fragments, and even the larger sherds are friable and crumbling. The reasons for this condition include the nature of their manufacture along with site soil conditions and postdeposition land uses. A surprisingly large sample of historic artifacts was recovered from the site, especially since the previously known historic cabin site was not a focus for excavation. Materials reflecting recent campground uses were recorded on excavation forms, but were not collected.

## Lithic Artifacts

As described above, the lithic artifact assemblage is dominated by fire-cracked rock and chipped stone debitage. Those materials were widely, and in some cases densely, distributed across all areas of the site (Table 6). Of the large number of units (289) excavated in 1987, only 25 were devoid of these materials. While eight units were excavated outside the eastern periphery of the site, the remaining 17 culturally sterile units were scattered within the site area. These, along with other units with very low yields of lithic material, help demonstrate that the site actually consists of numerous scatters which reflect sporadic occupation of the site over a considerable temporal span.

Chipped Stone Materials. A total of 11,593 chipped stone artifacts was recovered from the site in 1987. While this number is relatively large, it is less than what was expected based upon the site testing conducted in 1985 (Gilbert/Commonwealth Inc. 1986). Over 8,000 pieces of chipped stone were recovered from a single test unit by the Gilbert/Commonwealth Inc. team. However, that total reflects fine screen recovery from the most dense deposit on the site, an area which was sampled minimally in 1987 since it occurs outside the direct impact zone of the campground redevelopment project. Since chipped stone materials were the primary artifacts recovered in 1987, considerable emphasis was placed upon their analysis.

A total of 3,524 flakes, or 66 percent, of all flakes was identified as Norwood chert (Table 7). It is also probable that other identified chert types from the site, including four other varieties of banded chert, also reflect Norwood chert. It is apparent from Luedtke's description that there is considerable variation in color, texture, and presence of banding in the material. The various banded cherts identified at 20BZ16 may well fit within the range of variability of Norwood Chert. Only 128 specimens (two percent of the site total) were identified in these four banded chert groups. Alternately, the four other banded chert types may reflect various till cherts. A category of miscellaneous till cherts constitutes a large sample of the remaining flakes. A total of 1,315 flakes (25 percent of all flakes) was assigned to this group. There is a wide range of colors and textures reflected in this group. However, most of the pieces have smooth, rather waxy texture and represent good quality material for stone tool production despite the probable small size of the original pebbles. Those with cortex remaining on their dorsal surface reflect the curving shape one would expect from debitage derived from a small pebble.

While the distribution of the primary and secondary sources for Norwood chert is quite limited and specific, various till cherts are widely distributed in the region. Important primary sources for these materials include Silurian-age deposits which outcrop in the Upper Peninsula and Traverse Group sediments which outcrop in the upper portion of the Lower Peninsula (Luedtke 1976:99). Materials from these sources have been widely distributed by glacial action throughout most of Michigan. During transport, the cherts are formed into pebbles of various sizes. Materials, including large pieces of chert, were transported considerable distances from these primary sources, and till cherts were available to prehistoric occupants nearly everywhere in Michigan. The Lake Michigan shoreline is an obvious potential source for these cherts. To date, no sampling has been done on the gravel beaches at the mouth of the Platte River or in other nearby areas to determine the possible presence of such chert pebbles. However, it seems very likely that such materials do occur in these local settings.

Another diagnostic chert type identified in the flakes from 20BZ16 is Cordell chert. A total of 298 flakes of this type was recorded, accounting for approximately 5.6 percent of all flakes from the site. Cordell Chert is from Middle Silurian-age deposits whose primary source is in Michigan's Upper Peninsula. The material is of high quality for chipped stone tool production, with fine texture and waxy luster. The material is rather easily recognized due to the presence of numerous fossiliferous inclusions, including various rod-shaped structures. Like the glacial till cherts described above, Cordell chert is found not only at its primary source, but also throughout various till gravel deposits in many areas. It is a common constituent of glacial gravel and was widely used in prehistoric sites in the northern Michigan area (Luedtke 1976:214).

The remaining raw material types identified in the flake assemblage from 20BZ16 are minority types including burned/unidentified materials ( $n=18$ ), a unique banded and speckled till chert ( $n=17$ ), translucent chalcedony ( $n=12$ ), and a gray, translucent till

platforms account for 45.1 percent of all platforms, multifaceted and biface thinning or "lipped" platforms contribute the rather high value of 35.7 percent. Since extensively prepared cores with carefully shaped platforms which might yield flakes with faceted platforms are infrequent in the site assemblage, it is likely that this group of flakes primarily reflects advanced stages of reduction such as tool production and/or sharpening activities. Over 33 percent of all flakes in the assemblage appear to reflect these late stages of processing. The large number ( $n=1,234$ , or 23.2 percent of all flakes) of lipped platform flakes, which are traditionally considered to reflect flake removal along the edges of bifacial implements, are the best evidence for the importance of advanced tool processing activities. Many of the flakes with faceted platforms could also derive from tool production or maintenance.

The number of flake scars on the dorsal surfaces of the flakes is also an indicator of stage of reduction. In Table 8, the dorsal flake scar counts are portrayed by frequency, percentage, and cumulative percentage for the assemblage. These values range from a low of zero dorsal scars to a high of 11. While flakes with no dorsal scars are very infrequent, flakes with three or fewer scars constitute over 65 percent of the assemblage. Overall, the entire range of lithic reduction appears to be represented, but as with the other variables, there is considerable evidence for advanced stages of lithic reduction. Examined in combination with the other flake variables, it can be inferred that the entire process of pebble core reduction occurred at the site, but was not the primary form of flintknapping activity at the site. The primary and secondary flakes derive from reduction of pebbles with cortex over their surfaces. This is further reflected by the presence of numerous pebble cores in the assemblage.

The distribution of flakes across the site matches the distribution of non-diagnostic shatter. As was expected, their distributions are essentially parallel. The average density of flakes is about 20.1 per sq m, when units containing artifacts are considered. This density decreases somewhat (18.4 flakes per sq m) when all units, including those which were culturally sterile, are considered. Flake frequencies are presented for each excavation unit in Table 6. Table 9 provides a summary of flakes by raw material type by site scatter. It can be seen that considerable variability in flake density is present across the site and within individual scatters. Density per sq m ranges from a low of about five in Scatter 9, to a high of about 37 in Scatter 8. Area 8 includes the portion of the site where the Gilbert/Commonwealth Inc. team recovered large amounts of debitage in a single test unit in 1985. It is clear that although that portion of the site received limited sampling in 1987, it contains the most dense accumulation of artifacts across the entire site. Scatters 6 and 7 in the current picnic area also contain rather large numbers of flakes, as evidenced by averages of 27.5 and 22.5 flakes per sq m.

Artifact recovery was very sparse from site occupation features. However, flakes and non-diagnostic shatter were recovered from eight of the 29 site features. A total of 67 flakes and 83 pieces of non-diagnostic shatter was recovered from these features

One variable, the identification of "potlids" or spalls on the dorsal or ventral surfaces of flakes is a potential measure of application of heat to the items after they are made. Only 70, or 1.3 percent of the total number of flakes exhibited potlids on their surfaces. It appears that relatively few flakes were dropped or discarded into fires after their manufacture and/or use.

Chipped Stone Tools and Cores. A total of 101 chipped stone tools was recovered from the site in 1987. These tools account for about 0.9 percent of the total chipped stone assemblage. The 85 cores are represented by bipolar (n=37), amorphous (n=40), and more formally prepared (n=8) forms.

Bifacial Tools. A total of 64 complete and fragmentary bifacial chipped stone tools was recovered during site excavations in 1987. The provenience and analytical data for these tools is presented in Tables 6 and 13. These tools were subdivided into bifaces and projectile points. A total of 23 projectile points was recovered from the site (Table 14). Fourteen of those are complete, with the remainder represented by basal fragments. All distal biface fragments were coded as bifaces, rather than points, since one could not be certain if they derived from projectile points or other bifacial tools. The fourteen complete projectile points have an average length of 4.1 cm. Width and thickness were measured for all points, with averages of 2.1 cm and 0.6 cm, respectively, being recorded. Eighteen of the projectile points (78 percent) are made from Norwood chert, while two are made from Cordell chert. The remainder are made from various till cherts. The hafting elements represent a variety of shapes (Table 15). A sample of the projectile points are illustrated in Figure 34.

The distribution of the points across the site is obviously rather sparse, since there is an average of only one projectile point per 12.5 sq m of excavated site area. Points were recovered on average at a rate of one per 4.1 cu m of excavated matrix. Frequencies of tools relative to the nine identified artifact scatters at the site are depicted in Table 16. The overall low frequency of points makes comparison of densities for the various scatters quite tentative, but there appear to be strong differences in distribution across the site.

Bifaces are more numerous at the site than projectile points, but are still relatively infrequent in the site deposit. Forty-one bifaces were recovered from the site in 1987, occurring on an average of one per 7 sq m and one per 2.3 cu m of cultural matrix. Only 23 of the bifaces are complete, with the remainder broken. Breaks are essentially all across the blade (perpendicular to the length of the pieces). Only a single biface is broken lengthwise (Table 13). With regard to raw material, a higher usage of Cordell chert is seen compared with the projectile points. A total of 22 of the bifaces (53.6 percent) is made from Norwood chert, while 12 (29 percent) are made from Cordell chert. An additional five (12 percent) bifaces are identified as a type of banded till chert. As described earlier, it is likely that this chert is within the range of variation of Norwood chert, and could be classified within that group. If the material is a variant

material. Cordell chert accounts for 12 percent (n=10), till chert for 32 percent (n=27), and quartz for one percent (n=1). Of these, 52 (61 percent) are pebble cores, as evidenced by the presence of curving cortex remaining on portions of the cores. The remaining 33 cores have no cortex. The pebble cores include 27 of Norwood chert. This clearly demonstrates that secondary sources were being used for collection of this material. Till sources must have been rather important to the site inhabitants since all of the till chert, and likely the Cordell chert as well, were derived from till exposures. At least half of the Cordell chert cores have some cortex remaining on their surfaces, indicating a pebble source. The various cores which have no evidence of cortex may also have been derived from pebbles, but may have been sufficiently reduced to remove the outer weathered rind.

The rather small size of the bipolar cores from 20BZ16 matches well with the metric data from a very large sample of quartz pebble bipolar cores from site 47AS47 on western Lake Superior (Richner 1989). The average length of cores from the two sites is quite comparable. Since it has been determined that the average length of quartz pebbles selected for reduction at site 47AS47 is 3.66 cm, it may be reasonable to assume that the pebbles reduced through bipolar percussion flaking at 20BZ16 were of similar original size. The amorphous cores are somewhat larger than the bipolar cores (Table 18).

Of particular interest are the prepared cores. In seven cases only a single platform is present, and this platform has been rather carefully formed through removal of a series of flakes across the width of the cores. Numerous flakes were then detached in a single direction around the core from this prepared platform. These cores are wider than they are long. Further, thickness and length are essentially equal. The cores are reminiscent of Hopewell bladelet cores, although they are more crudely executed than typical examples of pyramidal cores.

Chipped and Pecked Celts. Two rather crude stone "celts" were recovered from adjacent excavation units in Scatter 6, south of the fish-cleaning station. Both were found at the base of the cultural deposit. One is from Unit 181-182N 331-332W, Level 3. The tool is 13.1 cm long, 5.7 cm wide, and 1.9 cm thick. It weighs 244.3 grams. The celt is formed through extensive chipping along the edges of an elongated beach cobble. The chipping is rather crude, since the object is made from a sandstone or similar material which does not exhibit true conchoidal fracture. This chipping has created an object which is essentially bifacial in form, with two relatively flat faces. One surface retains considerable cobble cortex, while the other face is completely covered with flake scars. There is no evidence of grinding or polish on the tool. The object may be a celt preform.

The second celt is from Unit 179-180N 331-332W, Level 3. This tool is 14.9 cm long, 5.9 cm wide, and 3.2 cm thick. It weighs 381.5 grams. Similar to the first celt, this tool maintains cobble cortex on one of its two flat surfaces. Unlike the first one, it is

cracked rocks may indicate that most of the cooking activities were conducted in birch bark or other perishable containers.

Any analysis of the use of fire-cracked rock at the site must be highly tentative, since, as described above, there is no direct artifactual or ecofactual data to support specific functions for the two kinds of fire-cracked rock features, nor the widespread and dense accumulations of fire-cracked rock across the site. Faunal remains are very few in number, and seeds and other plant remains are similarly scarce. Still, considerable efforts must have been expended in bringing smooth beach pebbles to the site. There is a total of 956.5 kg of fire-cracked rock from 1987 excavations at the site. Based upon this excavated sample, during the course of site occupation, many tons of beach pebbles and cobbles must have been purposefully brought to the site and used in some form of cooking activity. It appears that these materials were collected at the mouth of the Platte River, over a mile from site 20BZ16. Through use, these smooth beach stones were cracked and fragmented into angular pieces, and either discarded evenly across the site, or left in distinct clusters.

### Copper Artifacts

Two copper artifacts were recovered from site 20BZ16 in 1987. One is from Scatter 7 at the southwest edge of the site. Given the available Carbon-14 date and the style of the ceramic vessels from this area, it is quite likely that this copper tool is associated with a Middle Woodland occupation. It is from Unit 130-131N 302-303W. It is a copper awl which is 4.1 cm long, .49 cm wide, and .38 cm thick. It tapers to a sharp point on one end.

The second copper tool is from Scatter 6 south of the fish-cleaning station. This crescent-shaped fragment was recovered from Unit 177-178N 335-336W. It is 1.7 cm long, .67 cm wide, and .18 cm thick. This object appears to be a fragment from a larger tool.

### Ceramic Sherds

Ceramic sherds are not extremely numerous at the site, but were recovered from several different locations (Table 19). The distribution of sherds was considerably more limited than the distribution of chipped stone tools. Fortunately, some of the sherds were recovered from contexts which could be dated through absolute methods. Further, many of the sherds derived from a small number of vessels, at least two of which are represented by large numbers of sherds. These vessels appear to have been broken and left essentially in place. A total of 954 sherds larger than 1.7 cm in diameter was recovered. An additional 1,077 "sherdlets," small, highly fragmentary sherds, were also recovered. These tiny sherds maintain relatively little analytical utility. Sherds were recovered at a low frequency of 3.6 per sq m from the 264 units which contained artifacts. This equates to only 11 sherds per cu m. This contrasts with a site average

A.D. 1048-1269. This date range clearly places the vessel within the Late Woodland period. It is tempting to suggest that the remainder of Artifact Scatter 5 near the vessel is also Late Woodland in association, but there are no temporally diagnostic artifacts or other datable samples from outside Feature 5 from which to confirm such a generalization.

A few Late Woodland sherds were recovered from units in the northern portion of Area 2. Ceramic sherds appear to be rather widely distributed in Area 3, and scattered sherds were found in several of the excavation units there. Most appear to be Late Woodland types, but a single rim from a miniature vessel is probably associated with the Middle Woodland period.

A second crushed vessel was recovered from the block excavation in the southern portion of Area 2. The dense artifact scatter in that area has been designated Scatter 7. This vessel (Vessel 11) appears to be of Middle Woodland age, and was recovered near Feature 14, which yielded a calibrated date span circa A.D. 145-536. Further, Vessel 11 was found only a few meters north of the Middle Woodland rocker stamped vessel recovered during site testing in 1985 (Gilbert/Commonwealth Inc. 1986). Unfortunately, neither vessel was directly associated with any charred wood so they could not be dated through absolute means. Like crushed Vessel 10, condition of the Vessel 11 sherds is rather poor. A total of 199 sherds and 325 sherdlets was recovered from this vessel. The sherd scatter, designated Feature 12, extended from 134-136N 302-304W on the excavation grid. Four rim sherds and a single decorated body sherd were identified among the 199 sherds. The 325 sherdlets are all body fragments. The surface of the vessel has been partially smoothed, although a pattern of cord impressions can be discerned on some of the body sherds. Fragments from the vessel are illustrated in Figure 37.

Ceramic sherds were less common at the site than had been anticipated prior to fieldwork, with 446 sherds, or 47 percent of all of the sherds deriving from the two fragmentary vessels described above. There is little evidence from the ceramic assemblage to further document or investigate the relationship of the site's Middle Woodland component(s) with regional Hopewell manifestations. However, the ceramic sherds, along with the absolute dates derived from Carbon-14 processing, clearly document the multicomponent character of the site. Prior to 1987, it was thought that the site reflected a single, Middle Woodland component. The presence of sherds from dated Late Woodland contexts expands the age of the site considerably.

#### Faunal and Floral Remains

Carbonized Plant Remains. Preservation of archeobotanical remains from site 20BZ16 is rather poor. Charcoal was seldom observed during excavations. However, it was hoped that small pieces might be present in feature settings, so recovery methods were initiated to check for the presence of charred materials in select proveniences. A total

generalizations regarding the site environment and local vegetation conditions during the period of prehistoric site occupation.

A total of 10 carbonized seeds was recovered from a provenience adjacent to Feature 3 and a non-feature provenience (182-183N, 335-336W). The seeds represent at least five different plant taxa. Two are of bedstraw, one grape, one tentatively identified as viburnum, and one white pine. The grape and viburnum are from potentially edible fruits. Use of grapes, both fresh and dried, is well-documented in ethnohistoric literature, and the seeds are commonly recovered in archeological contexts. Several species of viburnum, including cranberry and nannyberry, were known to have been utilized in the Great Lakes region. All of the above plants may have grown near the site during its approximate 1,000 year span of occupation. Bedstraw may have been used to brew a medicinal beverage, but the seeds have no subsistence value. Seeds of this plant are common in archeological assemblages.

The limited information provided by archeobotanical analysis does not help in attempts to isolate the function of the numerous site features. However, the identification of several seeds, including two taxa of edible fruits, provides some indication that local fruits were eaten at the site. The two tree species identified in the samples continue to grow on the site today. Their presence in occupation features indicates that the range of overstory vegetation on or near the site may have remained essentially consistent over the past 1,700 years. Perhaps most importantly, the recovery of these charred botanical elements reveals that additional flotation processing from site features could be expected to provide potentially useful data on plant food sources and environmental setting at the site. This is rather important, especially considering the "poor preservation" of botanical remains typically reported from sites in northern, sandy soils. In addition, flotation sampling could supply the necessary charcoal for expanded Carbon-14 dating of site features.

Faunal Remains. Based upon 1987 excavation, site 20BZ16 contains a rather limited array of preserved faunal remains. Faunal remains were recovered from only a few prehistoric associations. Their condition is rather poor and their size quite small. To date, the faunal remains have not been subject to identification or other analyses. A list of proveniences containing fauna is provided in Table 19. However, it appears that few diagnostic elements were recovered from prehistoric contexts, despite flotation sampling of all cultural features and careful screening of all excavated matrix. Sampling of 95 cu m of cultural deposits and the low yield of faunal remains attest to the poor preservation of these materials across the site. Diagnostic elements were recovered from several units, but many of these are from mixed proveniences where nineteenth and early twentieth century materials occur along with prehistoric remains. Such co-associations were discovered in Scatters 7 and 8. In both areas, there is ample evidence for historic domestic structures and significant mixing of the upper portions of the soil profile. Based upon the scarcity of fauna from unmixed prehistoric associations, it

to be correct, since the nearby town of Honor was an important location during the late nineteenth century logging boom in the region, there is direct evidence for farming, at least on a small scale, at the location of the embanked structural remains. All but the northernmost three excavation units opened in Scatter 8 in 1987 yielded clear evidence of a plow zone. It appears that this cultivation was confined to the west side of the Lake Michigan Road, since no similar plow zones were identified in any of the scatters east of the road. This may suggest that the plowing was conducted rather late in the historic era, after the Lake Michigan Road was constructed. Further, the artifact scatter associated with the embanked feature strongly suggests a domestic function for the former structure (Table 22), rather than a logging function.

In terms of chronological placement, there are numerous temporally diagnostic items in the historic artifact inventory. Numerous cut nails are present, particularly in the large excavation block near the intersection of M 22 and the Lake Michigan Road. Cut nails were essentially replaced by wire nails by the mid-1890s. This strongly suggests that the Edgewater-related structures formerly present in this area were constructed in the late nineteenth century. The presence of several bottle fragments which have developed an amethyst tint is a further indication of site age. The presence of magnesium in the batch used to make these vessels dates them to circa 1880-1915. There are also numerous coins which span 1888 to the recent time period. The presence of three pennies dating 1888, 1901, and 1902 in a single unit probably reflect items lost during site occupation. There are also artifacts whose ages span most of the early twentieth century. It is difficult to determine if these relate to the "Edgewater occupation" or to use of the campground during its earlier State Park years.

In addition to temporally diagnostic items, there is broad historical evidence for placing the site's historic occupation in temporal perspective. The logging of the Platte River Basin, which was focused in nearby Honor, was finished by 1915 when the entire basin had been cut over. Since a sawmill was also present in Edgewater, it is likely that the Edgewater structures overlapping site 20BZ16 were built well-prior to that date. So despite the negative evidence from the county plat maps cited by the Gilbert/Commonwealth Inc. team, it is very likely that structures were standing on the southern and western portions of site 20BZ16 in the first and second decades of the twentieth century. Given the nature of the associated artifact assemblage, the occupation probably spans the last two decades of the nineteenth century as well.

## SUMMARY

The 1987 archeological investigation at Sleeping Bear Dunes National Lakeshore focused upon data collection at a prehistoric site (20BZ16) which will be impacted by planned redevelopment of a large campground and picnic area adjacent to the Platte River and State Highway 22. The site was discovered in 1985 during intensive survey of the approximately 90-acre campground redevelopment project area (Gilbert/Commonwealth Inc. 1986). The existing campground is heavily used, and NPS officials have determined that extensive redesign and development of the area is necessary. The site is confined to the southwest corner of the redevelopment area, extending about 320 meters along the Lake Michigan Road. The northernmost 140 meters of the site span both sides of the road, and it is probable that portions of the site are preserved under the road in that area. The site is currently bounded on the south by State Highway 22, but it is likely that the deposit formerly extended farther to the south. Various nineteenth and twentieth century land development projects south of the road may have obliterated any prehistoric deposits in that area. All but the northernmost edge of the site occurs within areas currently used for picnic, camping, and other recreational activities within the Platte River Campground.

Despite a long history of campground development and use extending from the early decades of the twentieth century, and the presence of shallow, sandy soils, *in situ* cultural materials were discovered at several areas of the site during limited testing in 1985 (Gilbert/Commonwealth Inc. 1986). More extensive excavations in 1987 by the MWAC team revealed that large areas of the site remain intact, despite numerous historic impacts in the area. Prior to 1987 fieldwork, site extent was estimated at about 22,000 sq m. Based upon excavation of 311 sq m in 1987, the area of *intact* cultural deposits appears to be somewhat smaller (19,000 sq m) than previously estimated. However, the intact portions of the site occur within an area of at least 36,000 sq m. Some portions of the site within this larger area have been destroyed, and there are areas within the site boundaries where the cultural deposit is either extremely sparse, or absent.

Excavations at site 20BZ16 in 1987 yielded considerable information for understanding and interpreting prehistoric occupation of the area. While the paucity of floral and faunal remains hinders analysis of subsistence activities undertaken at the site, the presence of intact features and several distinct artifact scatters indicates that the site still contains valuable information. Despite over a 90-year history of historic occupation and recreational use, a considerable portion of the cultural deposit remains intact. Even after the rather extensive excavation in 1987, undisturbed areas of the site are still present. Portions of the site (Area 3 and the northern portion of Area 1) apparently will not be impacted by the proposed redevelopment program, and should be preserved in place. Other areas will be disturbed through proposed construction activities. Extensive sampling has been undertaken in some of these areas, but additional excavation may be warranted in some areas of the site.

features, deep clusters or pits and shallow horizontal scatters, comprised of these rocks, remain intact at various portions of the site. While cooking activities are clearly inferred for these features and for the creation of the very large number of fire-cracked rocks which occur outside site occupation features, the precise nature of these activities remains unknown. This is due to a relative lack of ecofacts and the paucity of artifacts associated with the features. Minimal amounts of charred wood and no evidence of burned soil areas were recorded at the site. Stone boiling in perishable containers such as birch bark may have been a primary activity in the production of the large fire-cracked rock assemblage.

The charred wood and seed assemblage recovered from flotation sampling of site features suggests that the forest cover at the site has remained essentially constant over the past 1,700 years. The white pine and northern red oak identified in those samples still grow on the site today. The site was probably largely deforested during the Edgewater occupation, since there is evidence that the entire Platte River valley was logged-over by 1915. With the exception of a single large oak at a former house site in Scatter 8, few large trees are present in the area today. With the exception of two large red pine trees southwest and southeast of the fish-cleaning station, none of the seven trees cored at the site are older than about 30 years (Table 24). One red pine is about 110 years old, while another is about 66 years old. Although recovery of charred seeds was extremely limited, the identification of grape and other species clearly indicates that plants were collected and utilized at the site. This would indicate that at least some of the site occupations occurred during the summer months.

### Site Significance

Despite the limitations of data at the site, largely due to conditions for preservation of perishable materials in the sandy site matrix, the site is significant. It is largely intact and contains data pertinent for research of both Middle and Late Woodland occupation of the region. The site has recently been listed on the National Register of Historic Places. Given the ever-increasing rate of site destruction in the region, the importance of intact deposits such as 20BZ16 is considerably heightened (Lovis and Holman 1980). Numerous visitors to the site reported nearby sites on Platte Lake and other areas immediately outside the National Lakeshore that have been destroyed in recent years, and the long history of this process related to farming, resort activities, and local housing is apparent. Zones of high potential for the presence of prehistoric occupations (ancient beach strands, lake and river shorelines) are among the most heavily impacted areas in the county. Shorelines of the area lakes continue to be developed and the relatively few sites in the area are being rapidly lost. Unfortunately, few of the sites have been adequately recorded and fewer still have been investigated archeologically. The very low number of sites recorded in Benzie County is reflected by the fact that the Platte River Campground Site was recorded in 1985, yet is only the sixteenth site in the County to be listed on the State of Michigan files. Further, most

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Table 1. Excavation unit summary.

Provenience units	Prov. Code	Cu. m Matrix	Cu. m Fill	Scatter	Site Area
122-123N/298-299W	279	.3		7	2
126-127N/307-308W	270	.3		7	2
127-128N/290-291W	280	.3		7	2
127-128N/298-299W	276	.3		7	2
127-128N/301-302W	284	.3		7	2
127-128N/313-314W	269	.3		7	2
127-128N/315-316W	272	.3		7	2
128-129N/301-302W	287	.4		7	2
128-129N/302-303W	302	.4		7	2
129-130N/300-301W	306	.4		7	2
129-130N/301-302W	289	.4		7	2
129-130N/302-303W	297	.4		7	2
129-130N/303-304W	309	.4		7	2
129-130N/304-305W	267	.3		7	2
130-131N/294-295W	277	.3		7	2
130-131N/297-298W	283	.3		7	2
130-131N/300-301W	278	.4		7	2
130-131N/301-302W	275	.4		7	2
130-131N/302-303W	286	.4		7	2
130-131N/303-304W	318	.4		7	2
131-132N/300-301W	307	.4		7	2
131-132N/301-302W	299	.4		7	2
131-132N/302-302W	301	.4		7	2
132-133N/301-302W	303	.3		7	2
132-133N/302-303W	312	.4		7	2
132-133N/303-304W	315	.4		7	2
132-133N/309-310W	273	.3		7	2
132-133N/313-314W	271	.4		7	2
133-134N/284-285W	288	.3		7	2
133-134N/301-302W	298	.3		7	2
133-134N/302-303W	296	.3		7	2
133-134N/303-304W	291	.3		7	2
133-134N/313-314W	268	.4		7	2
134-135N/301-302W	295	.3		7	2
134-135N/302-303W	290	.3		7	2
134-135N/303-304W	266	.3		7	2
135-136N/301-302W	294	.3		7	2
135-136N/302-303W	293	.3		7	2
135-136N/303-304W	292	.3		7	2
137-138N/297-298W	281	.3		7	2
137-138N/311-312W	259	.4		7	2
137-138N/321-322W	254	.3		7	2
138-139N/274-275W	304	.3		7	2
138-139N/286-287W	285	.3		7	2
138-139N/301-302W	308	.3		7	2

Table 1. Continued.

Provenience units	Prov. Code	Cu. m Matrix	Cu. m Fill	Scatter	Site Area
178-179N/284-285W	244	.3		6	2
178-179N/313-314W	243	.3		6	2
178-179N/331-332W	213	.4	.20	6	2
178-179N/332-333W	207	.3		6	2
178-179N/333-334W	206	.3	.12	6	2
178-179N/334-335W	221	.3		6	2
178-179N/335-336W	229	.4		6	2
179-180N/299-300W	241	.3		6	2
179-180N/308-309W	239	.3		6	2
179-180N/313-314W	242	.3		6	2
179-180N/320-321W	237	.3		6	2
179-180N/324-325W	234	.3	.20	6	2
179-180N/327-328W	253	.3	.20	6	2
179-180N/331-332W	217	.3		6	2
179-180N/332-333W	220	.4	.17	6	2
179-180N/333-334W	222	.4		6	2
179-180N/334-335W	211	.3		6	2
179-180N/335-336W	212	.3		6	2
179-180N/340-341W	251	.3		6	2
180-181N/331-332W	201	.3		6	2
180-181N/332-333W	214	.4		6	2
180-181N/333-334W	223	.4		6	2
180-181N/334-335W	209	.3		6	2
180-181N/335-336W	205	.3	.12	6	2
181-182N/215-216W	322	.3		9	4
181-182N/331-332W	202	.3		6	2
181-182N/332-333W	215	.4		6	2
181-182N/333-334W	224	.4		6	2
181-182N/334-335W	199	.5	.1	6	2
181-182N/335-336W	203	.2		6	2
182-183N/320-321W	233	.3		6	2
182-183N/324-325W	231	.3		6	2
182-183N/328-329W	236	.3		6	2
182-183N/331-332W	210	.3		6	2
182-183N/332-333W	218	.4		6	2
182-183N/333-334W	225	.4		6	2
182-183N/334-335W	219	.3		6	2
182-183N/335-336W	216	.4		6	2
183-184N/342-343w	250	.3		6	2
185-186N/285-286W	245	.3		6	2
185-186N/319-320W	204	.3		6	2
185-185N/329-330W	200	.3		6	2
186-187N/305-306W	238	.3	.085	6	2
186-187N/309-310W	208	.3		6	2

Table 1. Continued.

Provenience units	Prov. Code	Cu. m Matrix	Cu. m Fill	Scatter	Site Area
288-289N/329-330W	365	.4		4	1
288-289N/330-331W	363	.4		4	1
289-290N/329-330W	368	.4		4	1
289-290N/330-331W	366	.4		4	1
289-290N/368-369W	168	.2		3	1
292-293N/325-326W	360	.4		4	1
294-295N/330-331W	362	.3		4	1
294-295N/373-374W		.2		3	1
295-296N/337-338W	166	.4		4	1
297-298N/435-436W	348	.3		8	3
298-299N/382-383W	165	.4		3	1
301-302N/383-384W	162	.4		3	1
302-303N/378-379W	178	.5		3	1
302-303N/379-380W	167	.4		3	1
302-303N/391-392W	156	.4		3	1
302-303N/394-395W	160	.5		3	1
302-303N/395-396W	164	.5		3	1
302-303N/398-399W	163	.5		3	1
305-306N/387-388W	161	.2	.18	3	1
306-307N/387-388W	157	.1	.2	3	1
307-308N/391-392W	158	.4		3	1
307-308N/396-397W	159	.4		3	1
310-311N/387-388W	155	.1		3	1
313-314N/436-437W	347	.3		8	3
314-315N/341-342W	361	.3		4	1
314-315N/391-392W	154	.5		3	1
315-316N/368-369W	153	.3		3	1
316-317N/396-397W	150	.4		3	1
316-317N/428-429W	350	.3		8	3
317-318N/354-355W	142	.3		4	1
317-318N/396-397W	149	.4		3	1
317-318N/399-400W	147	.4		3	1
317-318N/400-401W	146	.4		3	1
327-328N/353-354W	170	.3	.15	4	1
329-330N/381-382W	352	.3		3	1
329-330N/400-401W	145	.2	.36	2	1
332-333N/400-401W	141	.3	.215	2	1
334-335N/367-368W	133	.2		3	1
336-337N/407-408W	330	.4		2	1
336-337N/433-434W	351	.3		8	3
337.7-338N/402.7-404W	152	.16		2	1
338-339N/402.7-403W	151	.3		2	1
338-339N/403-404W	148	.3		2	1
339-340N/404-405W	329	.3		2	1

Table 1. Concluded.

Provenience units	Prov. Code	Cu. m Matrix	Cu. m Fill	Scatter	Site Area
388-389N/390-391W	116	.3		1	1
388-389N/422-423W	112	.3		1	1
388-389N/476-477W	338	.2		8	3
389-390N/410-411W	108	.3		1	1
389-390N/489-490W	334	.3		8	3
393-394N/414-415W	113	.4		1	1
394-395N/400-401W	104	.3		1	1
394-395N/406-407W	105	.4		1	1
394-395N/414-415W	109	.4		1	1
395-396N/409-410W	106	.4		1	1
395-396N/411-412W	101	.3		1	1
395-396N/419-420W	103	.3		1	1
396-397N/489-490W	339	.3		8	3
397-398N/389-390W	118	.4		1	1
400-401N/383-384W	119	.4		1	1
400-401N/393-394W	115	.3		1	1
400-401N/405-405W		.3		1	1
403-404N/489-490W	356	.3		8	3
403-404N/490-491W	355	.3		8	3
404-405N/489-490W	354	.3		8	3
406-407N/400-401W	102	.4		1	1
406-407N/405-406W		.3		1	1

Table 3. Summary of occupation features.

Ft.	Provenience	Extent*	Depth*	Type
1	337.7-339N/402.7-404W	56x35	22-65	FCR Pit
2	316-318N/396-397W	30x16	24-32	FCR Lens
3	302-303N/378-379W	60x20	15-50#	soil stain
4	266-267N/359-360W	20x54	7-19#	Modern Hearth
5	267-268N/359-360W	100x60	7-22#	Chrushed pot
6	266-267N/365-366W	73x59	40	FCR Lens
7	180-182N/335-336W	60x52	6-16#	FCR Lens
8	267-268N/362-363W	17x17	33-37#	FCR Lens
9	178-179N/331-332W	38x38	23-44#	FCR Lens
10	178-179N/335-336W	40x20	30-50#	FCR Lens
11	178-179N/335-336W	20x20	30-45#	FCR Lens
12	134-135N/301-304W	165x65	0-10	Crushed Pot
13	127-128N/313-314W	15x15	20-33	FCR Pit
14	130-131N/300-301W	40x30	40-60	Soil Stain
15	130-131N/302-304W	80x120	20-40	Soil Stain
16	131-132N/302-303W	54x28	17-20	Soil Stain
17	131-132N/302-303W	40x35	17-21	Soil Stain
18	131-132N/301-302W	40x24	13-18	Soil Stain
19	131-132N/301-302W	48x34	13-35	Soil Stain
20	131-132N/301-302W	17x21	13-18	Soil Stain
21	131-132N/301-302W	40x40	13-24	Soil Stain
22	129-130N/302-304W	35x90	10-22	Soil Stain
23	133-134W/301-302W	37x38	10-18	Soil Stain
24	163-164N/233-235W	100x80	20-25	FCR Lens
25	161-163N/233-235W	160x80	17	FCR Lens
26	158-159N/234-235W	20x20	23-40	FCR Pit
27	339-340N/404-405W	42x45	20-40	FCR Pit
28	403-405N/489-491W	130x120	18-23	FCR Lens
29	288-290N/329-331W	40x120	20-30	FCR Lens

Explanation

\*=measurement shown in cm  
 #=depth below old surface

Table 5. Artifact totals.

Artifact class	Provenience		Total
	Non-feature	Feature	
Fire-cracked rock	10,905	1,003	11,908
Non-diagnostic shatter	6,012	83	6,095
Flakes	5,247	65	5,312
Projectile points	23	0	23
Bifaces	39	2	41
Unifaces	37	0	37
Cores	81	4	85
Ceramic sherds	504	450	954
Ceramic "sherdlets"	426	651	1,077
Historic artifacts	362	0	362
Chipped and pecked celts	2	0	2
Copper artifacts	2	0	2
Totals*	23,640	2,258	25,898

Explanation

\* Faunal remains and charred botanical materials were also recovered but are not included in the totals.

Table 6. Continued.

Provenience units	Fire-cracked Rock		Debitage		Tools		
	#	Wt. (kg)	Flakes	NDS	Bi	PP	Un
138-139N/301-302W	5	.75		1			
138-139N/305-306W	21	1.75	12	14			
138-139N/316-317W	57	2.0	3	4	1		
141-142N/295-296W	4	.5					
141-142N/302-303W							
141-142N/316-317W	7	.95	3	4			
141-142N/324-325W	3	.35		1			
142-143N/310-311W	2	.5	1				
144-145N/299-300W							
149-150N/309-310W	9	.6	24	30			1
149-150N/310-311W	12	.75	72	84		1	
149-150N/311-312W	25	1.0	6	7			
150-151N/317-318W	8	.5	12	7		1	
151-152N/298-299W							
152-153N/292-293W	18	.75		1			
154-155N/317-318W	17	2.0	2				
154-155N/331-332W	26	2.0	2	1			
156-157N/234-235W	92	7.75		1			
157-158N/229-230W	10	1.75					
158-159N/234-235W	74	10.60	44	21	1	1	
158-159N/323-324W							
160-161N/234-235W							
160-161N/336-337W	35	2.5	2	3			
161-162N/233-234W	56	3.0	8	6			
161-162N/234-235W	17	2.5	1	2			
162-163N/234-235W	119	4.5	8	20	1		
162-163N/231-232W	66	4.0	4	2			
163-164N/227-228W							
163-164N/231-232W							
163-164N/233-234W	96	3.5	17	17		2	1
163-164N/234-235W	35	1.25	3	3	1	1	
164-165N/222-223W							
164-165N/237-238W	7	1.0		5			
164-165N/258-259W			1	1			
167-168N/228-229W	18	1.4		2			
168-169N/236-237W	4	.5		1			
169-170N/226-227W	48	3.25					
174-175N/308-309W	22	1.5	46	36	2		1
174-174N/313-314W	30	1.25	7	8			
174-175N/320-321W	19	2.25	4	3			
174-175N/323-324W	13	.5	8	4			
175-176N/298-299W	32	2.75	4	4			1
177-178N/335-336W	57	2.0	8	11			
177.2-178N/331-332W	63	3.25	8	9			

Table 6. Continued.

Provenience units	Fire-cracked Rock		Debitage		Tools		
	#	Wt. (kg)	Flakes	NDS	Bi	PP	Un
186-187N/305-306W	55	3.25					
186-187N/309-310W	1.0	10	1.0		1		
187-188N/324-425W	.5	3	.5	1	1		
187-188N/335-336W	3.0	33	3.0	1			
203-204N/233-234W							
207-208N/231-232W			1				
211-212N/238-239W	2	.35					
220-221N/247-248W							
221-222N/254-255W							
231-232N/264-265W							
236-237N/284-285W							
238-239N/277-278W							
242-243N/342-343W	3	.25	1				
247-248N/331-332W	2	.20			1		
247-248N/348-349W			1	2			
248-249N/357-358W	2	.5					
248-249N/360-361W	3	.25	13	9			
252-253N/306-307W							
254-255N/332-333W	8	.6	2				
260-261N/342-343W	16	2.75		1			
261-262N/353-354W							
265-266N/354-355W	50	2.5		1			
266-267N/359-360W	14	1.25	15	16		1	
266-267N/360-361W	50	4.0	49	40			1
266-267N/365-366W	41	4.5		3			
266-267N/367-368W	12	1.0	2	1			
267-268N/359-360W	8	1.0	4	8			1
267-268N/360-361W	50	3.5	8	9			
267-268N/361-362W	46	2.0	4	3			
267-268N/362-363W	107	9.0	16	16			
267-268N/363-364W	53	2.5	22	9			
267-268N/364-365W	77	7.5	20	27	1		
267-268N/365-366W	48	4.75	27	33	1		
268-269N/359-360W			4	3			
268-269N/360-361W	23	1.5	7	4			
268-269N/361-362W	22	.75	1	14			
269-270N/355-356W	19	1.75	1	1			
269-270N/359-360W	9	.75	1	4			
269-270N/360-361W	24	2.01	7	8	1		
269-270N/361-362W	14	.5	4			1	
272-273N/363-364W	6	.25	2	5			
273-274N/359-360W	18	3.5	27	30			
273-274N/360-361W	13	1.0	16	26	1	1	
276-277N/324-325W							

Table 6. Continued.

Provenience units	Fire-cracked Rock		Debitage		Tools		
	#	Wt. (kg)	Flakes	NDS	Bi	PP	Un
338-339N/402.7-403W	2	.25					
338-339N/403-404W	25	2.0	2	1			
339-340N/404-405W	18	.5		2			
341-342N/409-410W	12	1.50	2				
342-343N/404-405W	79	7.75	4	1			
342-343N/409-410W	14	1.0	1	5			
342-343N/438-439W	84	6.5	75	78	1		
343-344N/405-406W							
343-344N/406-407W	31	1.25	8	6			
343-344N/407-408W	13	.75	1				
343-344N/409-410W	5	.5					
343-344N/438-439W	35	3.0	38	51		1	
344-345N/404-405W	49	6.5	3	3			
344-345N/457-458W	15	.75	45	40			
345-346N/404-405W	72	7.5	3	7			
347-348N/401-402W							
347-348N/406-407W	28	3.50	2	1			
347-348N/408-409W	11	.75		7	1		
348-349N/380-381W	10	.75					
348-349N/408-409W	7	.60	9	11			
348-349N/409-410W	8	1.50					
349-350N/404-405W	124	11.25	8	2			
349-350N/408-409W	17	1.50	17	17			
349-350N/467-468W	15	.75	8	17			1
350-351N/404-405W	136	17.75	36	22			
350-351N/406-407W	96	7.85	9	5			
350-351N/438-439W	41	4.5	11	9			
351-352N/404-405W	113	12.0	96	149		1	1
354-355N/381-382W	4	.75					
359-360N/374-375W	51	3.25	2	2			
359-360N/381-382W	1	.25					
359-360N/386-387W	3	1.0					
359-360N/404-405W	3	.5					
359-360N/412-413W	103	7.25	7	10			
372-373N/399-400W	24	2.5	1			1	
372-373N/412-413W	3	.25	33	16	1		
373-374N/389-390W							
373-374N/419-420W	26	1.0	6	3			
377-378N/399-400W	3	.25					
380-381N/419-420W	22	1.0		3			
380-381N/468-469W	81	5.50	11	12			
383-384N/419-420W	9	.5	1	1			
384-385N/413-414W	73	5.0	7	8			
385-386N/410-411W	29	2.0	1	3			

Table 7. Raw material of flakes.

Name	Code	No.	ave. L (n=3296)	ave. W (n=5042)	ave. TH (n=5183)
Norwood	1	3,524	1.56	1.37	.21
Cordell	2	298	1.54	1.43	.24
Burned/Unid.	3	18	-	-	-
Chalcedony	4	12	-	-	-
Till chert		1,460			
Banded speckled till chert	5	17	-	-	-
Till - gray, translucent with inclusions	6	52	1.86	1.60	.29
Till - banded	7	37	1.60	1.61	.24
Till - banded	8	31	1.40	1.32	.19
Till - banded	9	8	-	-	-
Misc. till cherts	10	1,315	1.45	1.34	.23
Total		5,312			

Explanation

ave. = average

L = Length

W = Width

TH = Thickness

Misc. = Miscellaneous

- = sample size too small for meaningful calculation

Table 8. Concluded.

Number of dorsal scars on flakes:

No. of scars	Flake Count	%	cum %
0	151	2.8	2.8
1	358	6.7	9.6
2	1305	24.6	34.1
3	1649	31.0	65.2
4	930	17.5	82.7
5	461	8.7	91.4
6	227	4.3	95.7
7	109	2.1	97.7
8	57	1.1	98.8
9	21	.4	99.2
10	14	.3	99.4
11	2	.1	99.5
Not observed	28	.5	100.0
	Total	5,312	100.

Explanation

L = Length

W = Width

Th = Thickness

n = frequency

sd = standard deviation

Table 10. Artifact counts from site features.

Feat. No.	Feat. type	FCR	Debitage		Ceramic Sherds/ Sherdlets	Tools & Cores
			NDS	Flakes		
01	FCR pit	178	0	0	0/0	
02	FCR lens	16	0	0	0/0	
03	Soil stain	0	0	0	0/0	1 Biface
04	Modern hearth	0	0	0	0/0	
05	Crushed pot	0	0	0	247/326	
06	FCR lens	6	1	1	0/0	
07	FCR lens	69	0	0	0/0	
08	FCR lens	14	0	0	0/0	
09	FCR pit	63	4	2	0/0	
10	FCR pit	70	0	1	0/0	
11	FCR pit	12	0	0	0/0	
12	Crushed pot	0	0	0	199/325	1 Biface
13	Soil stain	0	0	0	0/0	
14	Soil stain	0	0	0	0/0	
15	Soil stain	54	30	15	0/0	1 core
16	Soil stain	0	0	0	0/0	
17	Soil stain	0	0	0	0/0	
18	Soil stain	0	4	3	0/0	
19	Soil stain	2	0	0	0/0	
20	Soil stain	0	0	0	0/0	
21	Soil stain	0	0	0	0/0	
22	Soil stain	0	28	18	0/0	2 cores
23	Soil stain	0	0	0	0/0	
24	FCR lens	63	0	0	0/0	
25	FCR lens	152	0	0	0/0	
26	FCR pit	19	0	0	0/0	
27	FCR pit	67	0	0	0/0	
28	FCR lens	186	4	6	4/0	
29	FCR lens	32	12	19	0/0	1 core
Totals		1,003	83	65	450/651	

Explanation

Feat. = Feature  
 No. = Number  
 FCR = Firecracked rock  
 NDS = Non-diagnostic shatter

Table 12. Distribution of flake raw material by level.

Level	Raw Material										Total
	1	2	3	4	5	6	7	8	9	10	
0	n 4	1	0	0	0	0	0	0	0	7	12
1	n 684 % 63	101 9	8	11	4	22	5	8	4	241 22	1088
2	n 1786 % 71	118 5	8	1	10	22	16	16	3	543 22	2523
3	n 928 % 64	69 5	2	0	2	7	14	7	1	427 29	1457
4	n 117 % 52	9	0	0	1	1	2	0	0	94 42	224
5	n 5	0	0	0	0	0	0	0	0	3	8
	n 3524 % 66.3	298 5.6	18 .3	12 .2	17 .3	52 1	37 .7	31 .6	8 .2	1315 24.8	5312

Explanation

n = frequency

% = percent. Percent was generally not calculated for records with small sample sizes.

Raw material codes:

- 1 = Norwood
- 2 = Cordell
- 3 = Burned/unidentified
- 4 = Chalcedony
- 5 = Till chert, banded and speckled
- 6 = Till chert, translucent gray with inclusions
- 7 = Till chert, banded
- 8 = Till chert, banded
- 9 = Till chert, banded
- 10 = Till chert, miscellaneous

Levels were defined as follows:

- 0 = Modern fill or current surface
- 1 = 0-10 cm below original surface
- 2 = 10-20 cm below original surface
- 3 = 20-30 cm below original surface
- 4 = 30-40 cm below original surface
- 5 = 40-50 cm below original surface

Table 14. Projectile point data.

Scatter	Portion			Material				
	Distal	Proximal	Complete	1	2	4	10	Un
1	--	--	1	1	-	-	-	-
2	--	--	2	2	-	-	-	-
3	--	--	2	2	-	-	-	-
5	1	1	1	3	-	-	-	-
6	--	1	2	3	-	-	-	-
7	1	3	2	4	-	-	1	1
8	--	--	2	2	-	-	-	-
9	--	2	2	1	2	-	-	1
Totals	2	7	14	18	2	-	1	2

Scatter	Metric Attributes of Projectile Points (mm)		
	Length	Width	Thickness
1	55.64	26.37	9.39
2	50.48	24.73	9.04
3	47.23	21.98	15.62
6	43.33	19.81	7.51
7	24.08	19.35	5.77
8	31.03	17.22	5.33
9	42.65	19.92	5.29

Explanation

Material

1=Norwood Chert

2=Cordell Chert

4=Calcedony

10=Till Chert

Un=Undetermined

Table 16. Artifact counts by scatter and area.

Sc.	Sq. m.	Cu. m. Debitage		FCR		Tools				Cera.		
		Matrix	Fl	NDS	No.	Wt.	Bi	PP	Un	Co	She	Shl
1	34	12.5	544	727	1556	108.75	2	1	0	6	0	0
2	26.1	8.86	214	249	1390	203.9	2	2	1	8	26	123
3	23	8.1	379	317	594	6.9	6	2	4	7	35	46
4	14	4.7	260	246	321	26.85	0	0	3	5	0	0
5	31	10.1	255	275	758	64.36	3	3	2	5	248	326
6	53.3	17.22	1521	1705	4106	282.09	8	3	7	24	209	103
7	63	21.1	1452	1831	1537	106.3	13	6	15	23	245	375
8	16	5.1	600	664	768	47.9	4	2	1	3	170	102
9	21	5.6	87	81	878	51.75	3	4	3	1	0	0
other	6	1.4	0	0	0	0	0	0	0	1	0	0
surface		0	0	0	0	0	0	0	1	0	0	0
Tot	287.4	94.68	5312	6095	11908	953.5	41	23	37	85	954	1077

Area	Sq. m.	Cu. m. Debitage		FCR		Tools				Cera.		
		Matrix	Fl	NDS	No.	Wt.	Bi	PP	Un	Co	She	Shl
1	128.1	44.26	1652	1814	4619	410.76	13	8	10	31	309	495
2	116.3	38.32	2973	3536	5643	388.39	21	9	22	47	454	478
3	16	5.1	600	664	768	47.9	4	2	1	3	170	102
4	21	5.6	87	81	878	51.75	3	4	3	1	0	0
other	6	1.4	0	0	0	0	0	0	0	1	0	0
surface		0	0	0	0	0	0	0	1	0	0	0
Tot	287.4	94.68	5312	6095	11908	953.5	41	23	37	85	954	1077

Explanation of abbreviations

Sc.	Scatter
Fl	Flake
NDS	Non-diagnostic shatter
No.	Number
Wt.	Weight
Bi	Biface
PP	Projectile Point
Un	Uniface
Co	Core
Cera.	Ceramics
She	Sherds
Shl	Sherdlets

Table 18. Characteristics of cores.

Material	Ave. No. Platforms	Ave. N. Scars	Ave. L.	Ave. W.	Ave. Th.	Ave. Wt.	Ave. % Cortex	N
Till chert	1.6	4.1	3.37	3.09	1.68	1.83	28.5	27
Norwood chert	1.6	3.6	3.57	3.54	3.37	2.04	27.8	47
Cordell chert	1.5	5.3	3.07	2.56	1.54	1.29	16.0	10
Quartz	2.0	1.0	2.32	1.34	1.56	2.0	75.0	1
Total	1.6	3.9	3.42	3.16	1.86	2.26	27.2	85

Form	Ave. No. Platforms	Ave. N. Scars	Ave. L.	Ave. W.	Ave. Th.	Ave. Wt.	Ave. % Cortex	N
Bipolar	2.0	3.5	2.91	2.30	1.39	1.14	19.6	34
Quadripolar	4.0	3.0	4.94	3.35	2.12	4.04	25.0	3
Amorphous	1.2	4.3	3.87	3.69	2.03	2.95	34.0	40
Prepared	1.0	4.6	2.72	4.10	2.89	2.97	26.3	8
Total	1.6	3.9	3.42	3.16	1.86	2.26	27.2	85

Form	Raw Material				N
	Norwood	Cordell	Till chert	Quartz	
Bipolar	15	5	13	1	34
Quadripolar	3	0	0	0	3
Amorphous	22	5	13	0	40
Prepared	7	0	1	0	8
Totals	47	10	27	1	85

Explanation

Ave. = Average  
 No. = Number  
 L. = Length  
 W. = Width  
 Th. = Thickness  
 N = Frequency

Table 19. Continued.

Provenience units	Ceramic Sherds	Sherdlets	Historic Fauna Matl.	Charred Flora
138-139N/274-275W			+	-
138-139N/286-287W			-	-
138-139N/301-302W			+	-
138-139N/305-306W			-	-
138-139N/316-317W			-	-
141-142N/295-296W			+	+
141-142N/302-303W			-	-
141-142N/316-317W			-	-
141-142N/324-325W			-	-
142-143N/310-311W			-	-
144-145N/299-300W			-	-
149-150N/309-310W			-	-
149-150N/310-311W			-	-
149-150N/311-312W			-	-
150-151N/317-318W	3	2	-	-
151-152N/298-299W			-	-
152-153N/292-293W			-	-
154-155N/317-318W			-	-
154-155N/331-332W			-	-
156-157N/234-235W			-	-
157-158N/229-230W			-	-
158-159N/234-235W			-	-
158-159N/323-324W			-	-
160-161N/234-235W			-	-
160-161N/336-337W			-	-
161-162N/233-234W			-	-
161-162N/234-235W			-	-
162-163N/233-234W			+	-
162-163N/234-345W			-	-
163-164N/227-228W			-	-
163-164N/231-232W			-	-
163-164N/233-234W			-	-
163-164N/234-235W			+	-
164-165N/222-223W			-	-
164-165N/237-238W			-	-
164-165N/258-259W			-	-
167-168N/228-229W			-	-
168-169N/236-237W			-	-
169-170N/226-227W			-	-
174-175N/308-309W	2	3	-	-
174-174N/313-314W	7		+	-
174-175N/320-321W			+	-
174-175N/323-322W			-	-

Table 19. Continued.

Provenience units	Ceramic Sherds Sherds Sherdlets	Historic Fauna Matl.	Charred Flora
183-184N/342-343W		-	-
185-186N/285-286W		+	-
185-186N/319-320W		-	-
185-185N/329-330W		-	-
186-187N/305-306W		+	-
186-187N/309-310W		-	-
187-188N/324-425W		-	-
187-188N/335-336W		-	-
203-204N/233-234W		-	-
207-208N/231-232W		-	-
211-212N/238-239W		-	-
220-221N/247-248W		-	-
221-222N/254-255W		-	-
231-232N/264-265W		-	-
236-237N/284-285W		-	-
238-239N/277-278W		+	-
242-243N/342-343W		-	-
247-248N/331-332W		-	-
247-248N/348-349W		+	-
248-249N/357-358W		-	-
248-249N/360-361W		-	-
252-253N/306-307W		-	-
254-255N/332-333W		-	-
260-261N/342-343W		-	-
261-262N/353-354W		-	+
265-266N/354-355W		-	-
266-267N/359-360W		-	-
266-267N/360-361W	18	25	-
266-267N/365-366W		-	-
266-267N/367-368W		-	-
267-268N/359-360W	214	296	+
267-268N/360-361W	15	5	+
267-268N/362-363W		-	-
267-268N/363-364W		-	-
267-268N/364-365W		-	-
267-268N/365-366W		-	-
268-269N/359-360W	1	-	-
268-269N/360-361W		-	-
268-269N/361-362W		-	-
269-270N/355-356W		+	-
269-270N/359-360W		-	-
269-270N/360-361W		-	-
269-270N/361-362W		-	-

Table 19. Continued.

Provenience units	Ceramic Sherds	Sherds Sherdlets	Historic Fauna Matl.	Charred Flora
334-335N/367-368W			+	-
336-337N/407-408W			-	-
336-337N/433-434W	1		-	-
337.7-338N/402.7-404W			-	-
338-339N/402.7-403W			-	-
338-339N/403-404W			-	-
339-340N/404-405W			-	-
341-342N/409-410W			-	-
342-343N/404-405W			-	-
342-343N/409-410W			-	-
342-343N/438-439W	49		+	+
343-344N/405-406W			-	-
343-344N/406-407W			-	-
343-344N/407-408W			-	-
343-344N/409-410W	1		-	-
343-344N/438-439W	15	10	-	+
344-345N/404-405W			+	+
344-345N/457-458W			+	-
345-346N/404-405W			-	-
347-348N/401-402W			-	-
347-348N/406-407W			-	+
347-348N/408-409W			-	-
348-349N/380-381W			-	-
348-349N/408-409W	18	41	+	-
348-349N/409-410W			-	-
349-350N/404-405W			-	-
349-350N/408-409W	7	82	-	+
349-350N/467-468W			+	-
350-351N/404-405W			-	-
350-351N/406-407W			-	-
350-351N/438-439W	25	21	+	+
351-352N/404-405W			-	-
354-355N/381-382W			-	-
359-360N/374-375W			-	-
359-360N/381-382W			-	-
359-360N/386-387W			-	-
359-360N/404-405W			-	-
359-360N/412-413W			-	-
372-373N/399-400W			-	-
372-373N/412-413W			-	-
373-374N/389-390W			-	-
373-374N/419-420W			-	-
377-378N/399-400W			-	-

Table 20. Decorated sherds and vessel summary.

Sherd count per portion

Portion	No. Sherds
Rim	41
Decorated body sherds	17
Body sherds (undecorated)	896
Totals	954

Rim characteristics

Lip forms	Outflaring	Rimforms Straight	Undetermined
Flat	10	2	
Round	7	2	
Undetermined			20
Totals	17	4	20

Surface Treatment

Portion	Surface Treatment of Sherds			
	Corded	Smooth	Roughened	Undetermined
Rim	20	7		14
Decorated body sherds	4	12		1
Body sherds	144	115	9	628
Totals	168	134	9	643

Identified Vessels, portion, and treatment

Vessel No.	Feat	No. Sherds	Portion	Surface Treatment
1	--	1	rim	corded
2	--	1	rim	undetermined
3	--	1	rim	smooth
4	--	2	rim	corded
5	--	1	rim	smooth
6	--	3	body	corded
7	--	1	rim	smooth
8	--	1	rim	corded
9	--	2	rim	undetermined
10	5	247	rim/body	corded
11	12	199	rim/body	smooth & corded

Table 21. Archeobotanical samples.

Wood Charcoal Fragments

Feat/Provenience	No./No.E	Wt.	Taxa or Group				Unid
			Pine	White Pine	Red Oak	Coni	
5	68/20	7.9	-	20	-	-	-
9	11/11	.4	-	8	-	-	3
13	153/20	34.1	-	20	-	-	-
14(E1/2)	110/20	14.4	-	-	20	-	-
14(W1/2)	65/20	2.6	-	-	20	-	-
162-163N/335-336W	75/20	14.0	3	15	-	-	2
302-303N/379-380W (adj. Ft. 3)	34/20	2.1	-	2	3	2	13
302-303N/378-379W (adj. Ft. 3)	64/20	6.1	-	-	3	-	17
Totals	580/151	81.6	3	65	46	2	35

Charred Seeds

Feat/Provenience	No.	Taxa or Group					Unid
		Bed straw	White Pine	Vibur.	Grape	unk	
5	-	-	-	-	-	-	-
9	-	-	-	-	-	-	-
13	1	-	-	-	-	1	-
14(E1/2)	-	-	-	-	-	-	-
14(E1/2)	-	-	-	-	-	-	-
162-163N/335-336W	4	-	1	1	1	-	1
302-303N/379-380W (adj. Ft. 3)	3	1	-	-	-	-	2
302-303N/378-379W (adj. Ft. 3)	2	1	-	-	-	-	1
Totals	10	2	1	1	1	1	4

Explanations

No./No.E=Number of wood fragments/Number of wood fragments examined

Wt.=Weight

Coni=Conifer

Unid=Unidentifiable

Vibur.=Viburnum

Unk=Unknown

No.=Number

Feat=Feature

Table 22. Continued.

Provenience Unit	Level	Count	Description
129-130N, 302-303W	1	3	1 brown bottle glass sherd, 2 colorless bottle glass sherds
129-130N, 302-303W	2	1	nail, cut
		1	metal, eyelet/rivet
129-130N, 303-304W	1	1	eyelet/rivet
		1	glass sherd, bottle (brown)
		1	nail, cut
		4	sample, plaster
129-130N, 304-305W	1	3	nail, cut
130-131N, 297-298W	1	1	cartridge, .22 x-long rimfire
		1	nail, wire
		1	trim, metal
130-131N, 300-301W	1	1	tack, thumb
130-131N, 300-301W	2	1	glass sherd, bottle (colorless)
130-131N, 301-302W	1	1	nail, cut
130-131N, 302-303W	1	1	metal, unid. (caster?)
131-132N, 300-301W	1	1	canning jar rim
132-133N, 301-302W	1	1	glass sherd, curved, (green)
132-133N, 309-310W	1	1	nail, cut
134-135N, 303-304W	1	1	cartridge, .35 (auto, rim-less, centerfire)
		1	glass, dome (percolator)
		1	drawer pull, brass
137-138N, 297-298W	1	1	glass sherd, bottle (brown)
137-138N, 311-312W	1	2	glass sherd, bottle (colorless)
138-139N, 274-275W	1	1	nail, wire
138-139N, 301-302W	1	1	screw, 1"
		1	glass sherd, curved (amethyst) ca. 1880-1915
		3	coin, 1-cent (1888, 1901, 1902)
141-142N, 295-296W	1	1	sample, concrete
		1	whiteware, rim, repousse
		1	nail, unidentified
		1	ferrule, brass
141-142N, 295-296W	2	3	1 wire nail, 2 unid. nails
		1	button, glass
		1	sample, plaster
162-163N, 235-236W	1	1	coin, 1-cent (1960)
163-164N, 236-237W	1	1	coin, 1-cent (1918)
174-175N, 313-314W	1	1	coin, 5-cent (1909)
178-179N, 313-314W	1	1	cartridge, .22, rimfire

Table 22. Continued.

Provenience	Level	Count	Description
313-314N, 436-437W	1	3	glass, curved (2 green, 1 amethyst, ca. 1880-1915)
313-314N, 436-437W	2	3	2 cut nails, 1 wire nail
		1	whiteware (body sherd)
314-315N, 391-392W	2	1	glass sherd, curved, colorless)
		1	glass sherd, bottle (brown)
314-415N, 391-392W	3	1	glass sherd, bottle (brown)
314-315N, 391-392W	4	1	plastic
316-317N, 428-429W	1	10	1 wire nail, 6 cut nails, 3 unidentified nails
		3	1 buckle, 1 trivet frag., 1 lag screw
		3	glass sherd, window
		1	porcelain doll hand
316-317N, 428-429W	2	1	nail, cut
317-318N, 399-400W	1	1	glass sherd, bottle (colorless)
317-318N, 400-401W	1	39	*glass, bottle (assorted pieces; colorless)
334-335N, 367-368W	1	1	glass sherd, bottle (colorless)
		1	oil lamp chimney frag.
342-343N, 438-439W	1	2	glass, flat (colorless)
		3	whiteware (body sherds)
342-343N, 438-439W	2	1	glass sherd, flat
		3	whiteware
344-345N, 404-405W	1	1	glass sherd, flat (mirror)
		1	coin, 10-cent (1941)
344-345N, 457-458W	1	1	wire
344-345N, 457-458W	2	1	tin can top
		6	whiteware
		2	glass, curved (jar?)
		3	grommet, shoe
		1	glass, curved (blue-green)
344-345N, 457-458W	3	3	2 cut nails, 1 wire nail
		1	nail, cut
349-350N, 467-468W	1	1	nail, cut
349-350N, 467-468W	2	1	nail, cut
350-351N, 438-439W	1	12	glass sherd, curved
		2	whiteware (rim sherds)
		1	stoneware (body sherd)
		9	4 cut nails, 5 wire nails
		1	pipe fitting
		1	brass cap
		2	rivet (clothing fastener)
		1	curling iron

Table 23. Historic and recent cultural materials recorded and discarded.

Provenience Unit	Level	Count	Description
127-128N, 290-291W	1	5	sample, coal
130-131N, 302-303W	1	2	plastic fragments
174-175N, 320-321W	1	1	rusted nail broken into many fragments
178-179N, 313-314W	1	4	crown bottle cap
178-179N, 333-334W	1	1	metal, unidentified
181-182N, 215-216W	1	1	crown bottle cap
		1	sample, cinder-like; burned sand?
302-303N, 379-380W	1	7	1 crown bottle cap, 4 pieces, plastic, 2 pieces pull tab
314-315N, 391-392W	2	3	plastic, hard (grey)
344-345N, 457-458W	2	2	burned glass
		1	barbed wire fragment
348-349N, 408-409W	1	1	metal, unidentified
350-351N, 438-439W	1	7	metal, unidentified
		1	burned glass

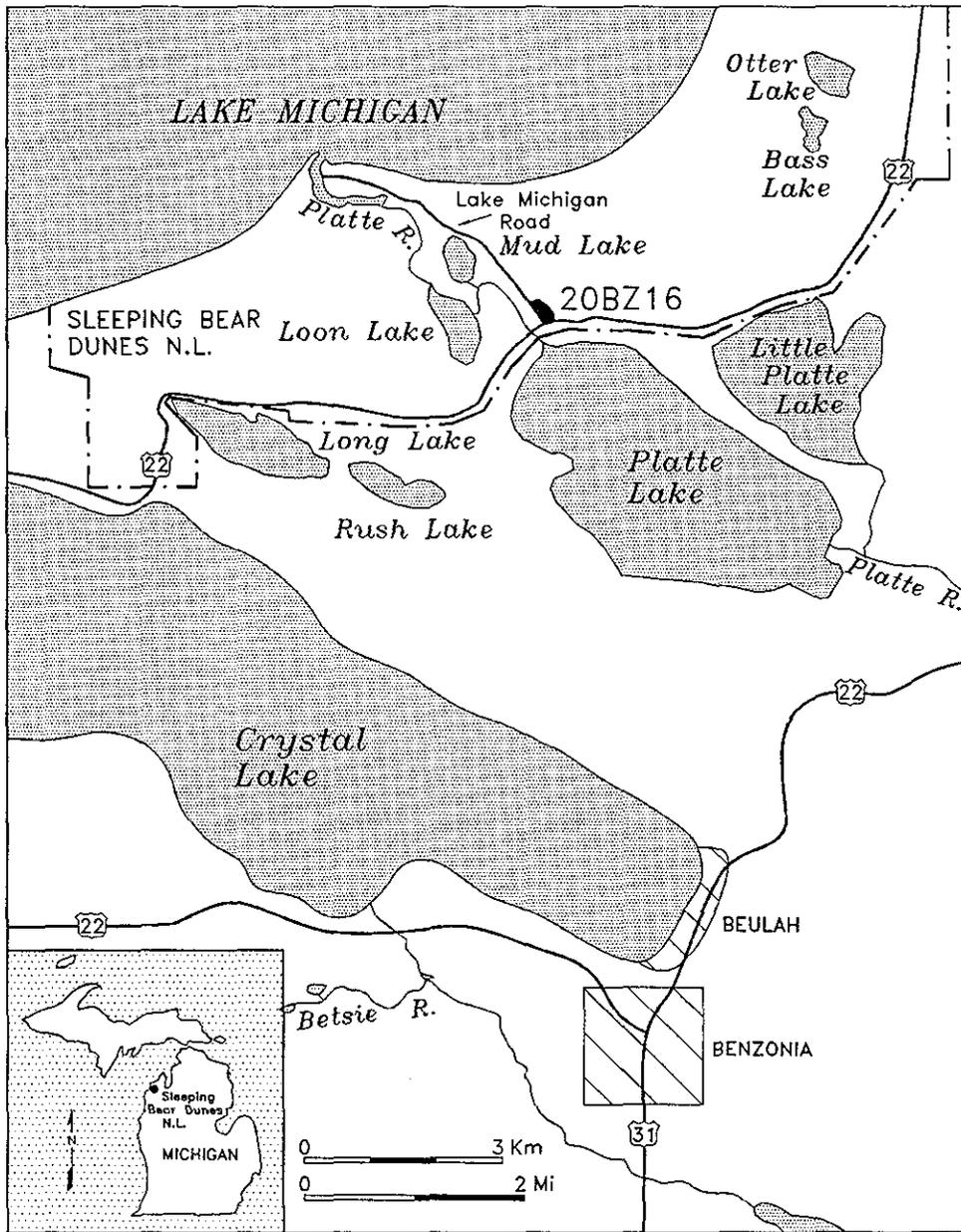


Figure 1. Project area map.

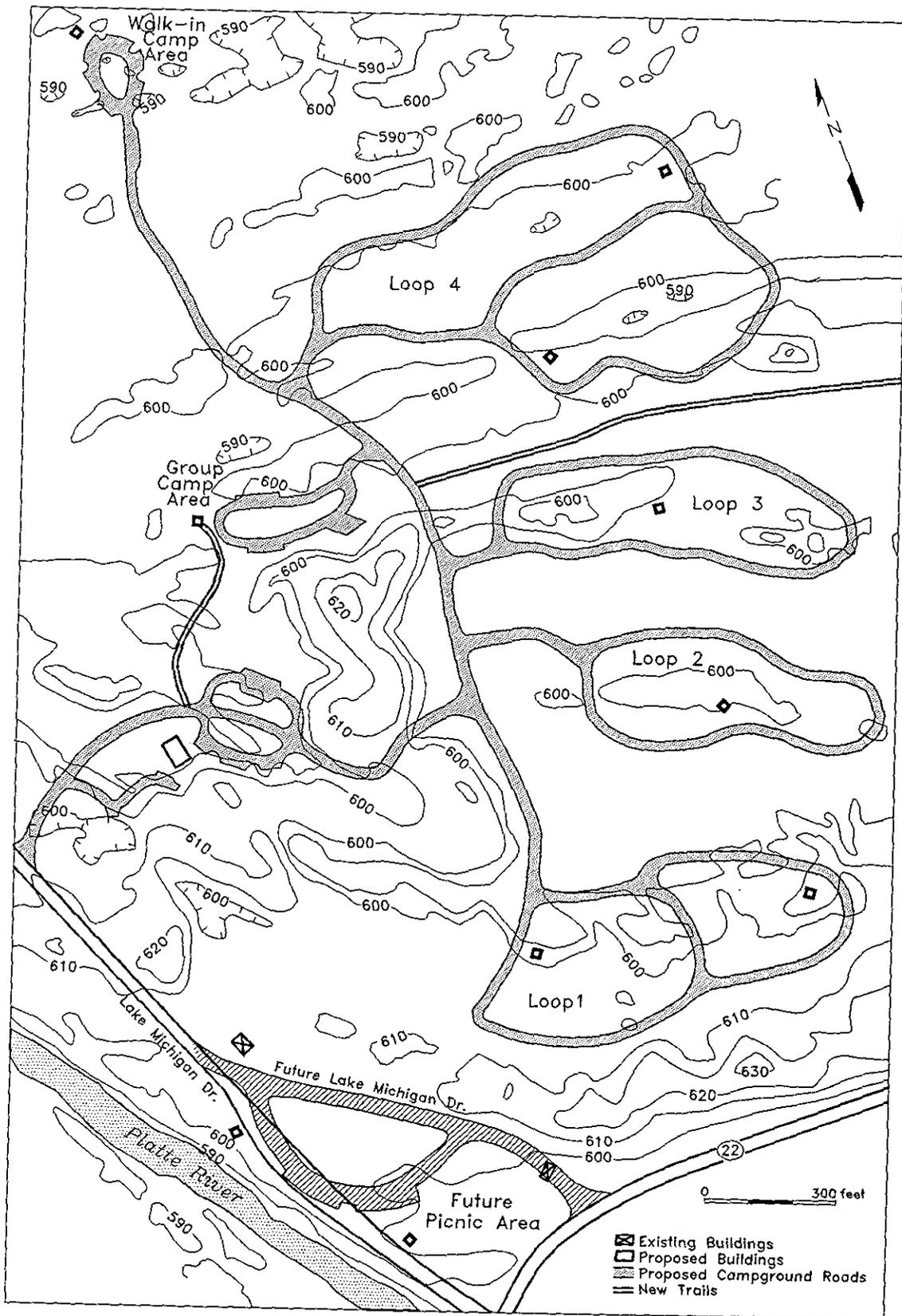


Figure 3. Platte River Campground renovation components.

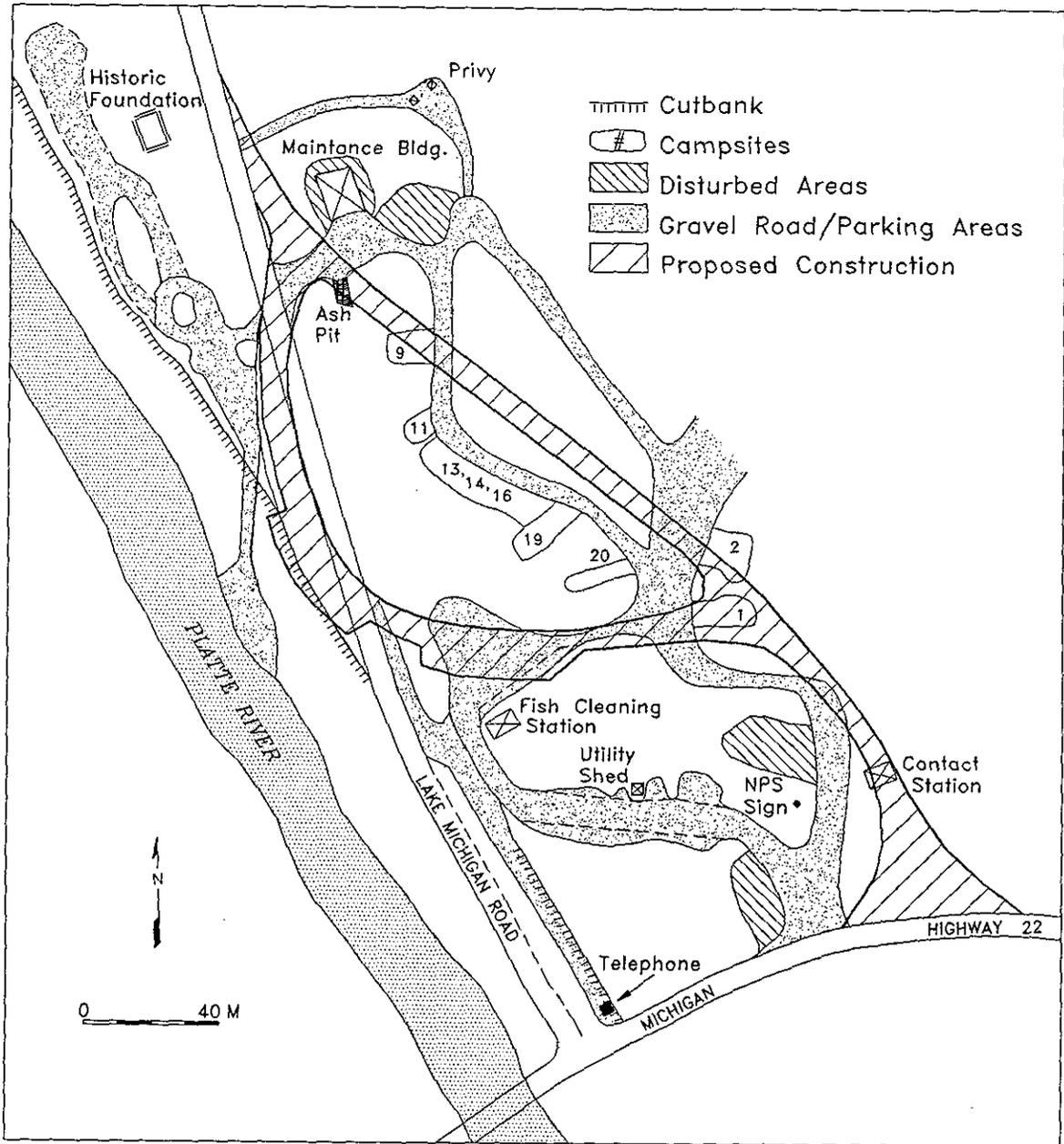


Figure 5. Construction components planned for the site area.

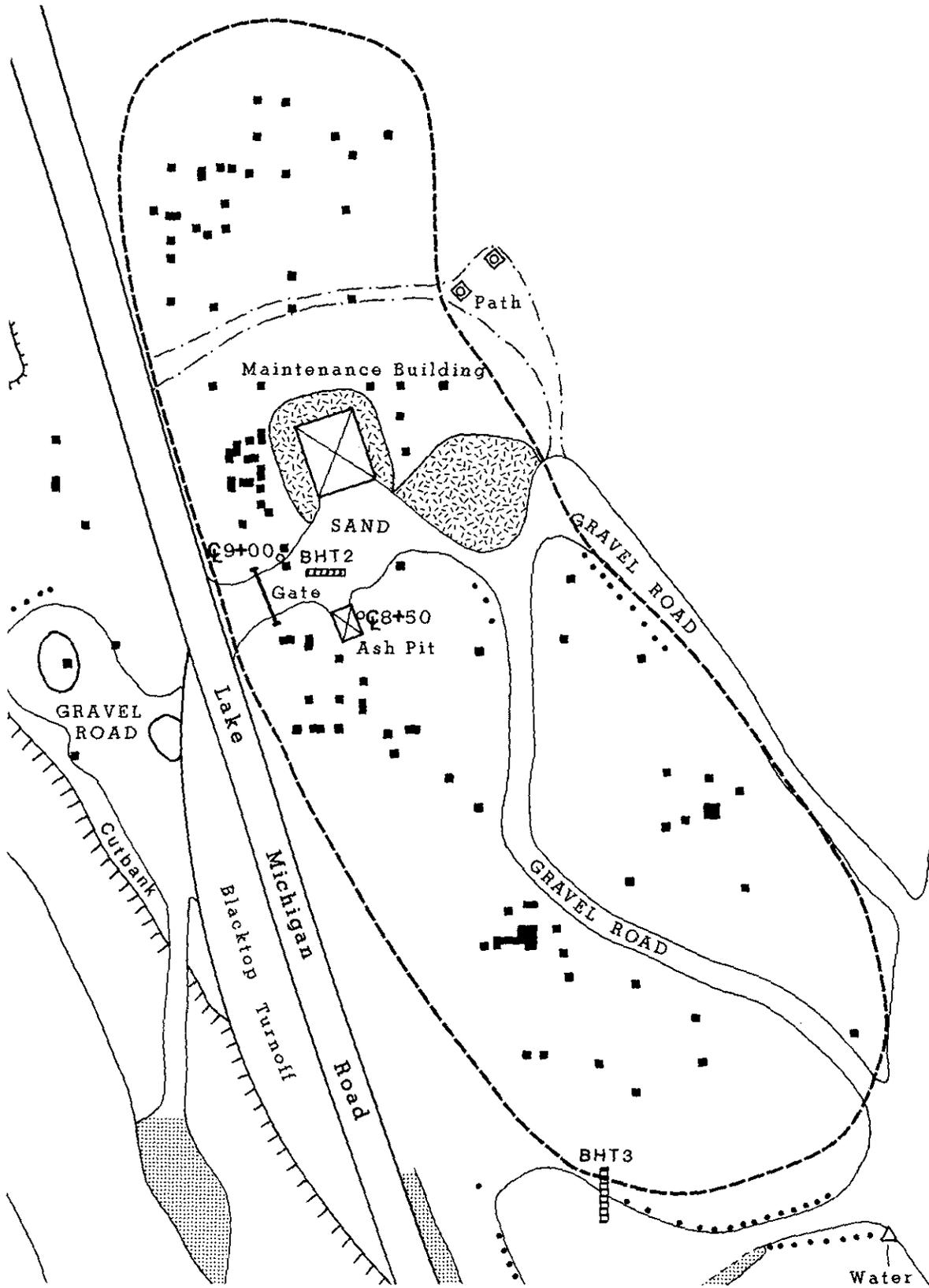


Figure 7. Excavation plan, Area 1.



Figure 10. Area 1, campsite 13, low dune in background.



Figure 11. Area 1, campground loop.



Figure 13. Area 2, northern portion.

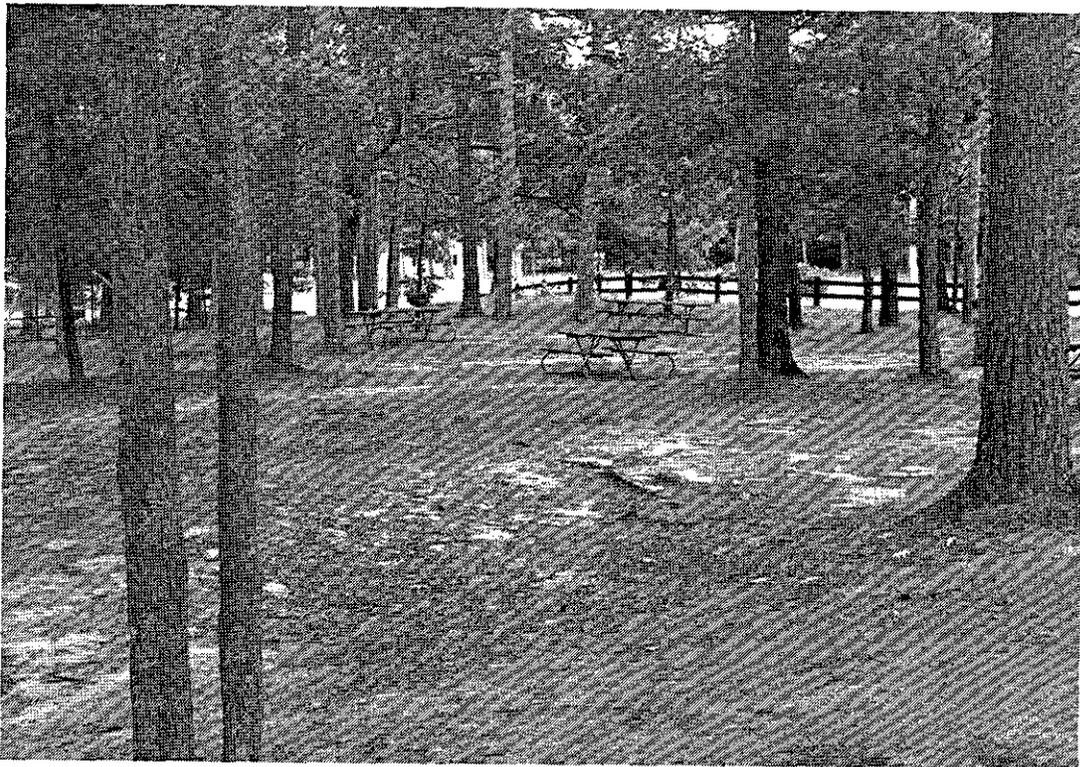


Figure 14. Area 2, southern portion.



Figure 16. Area 3, view to north.

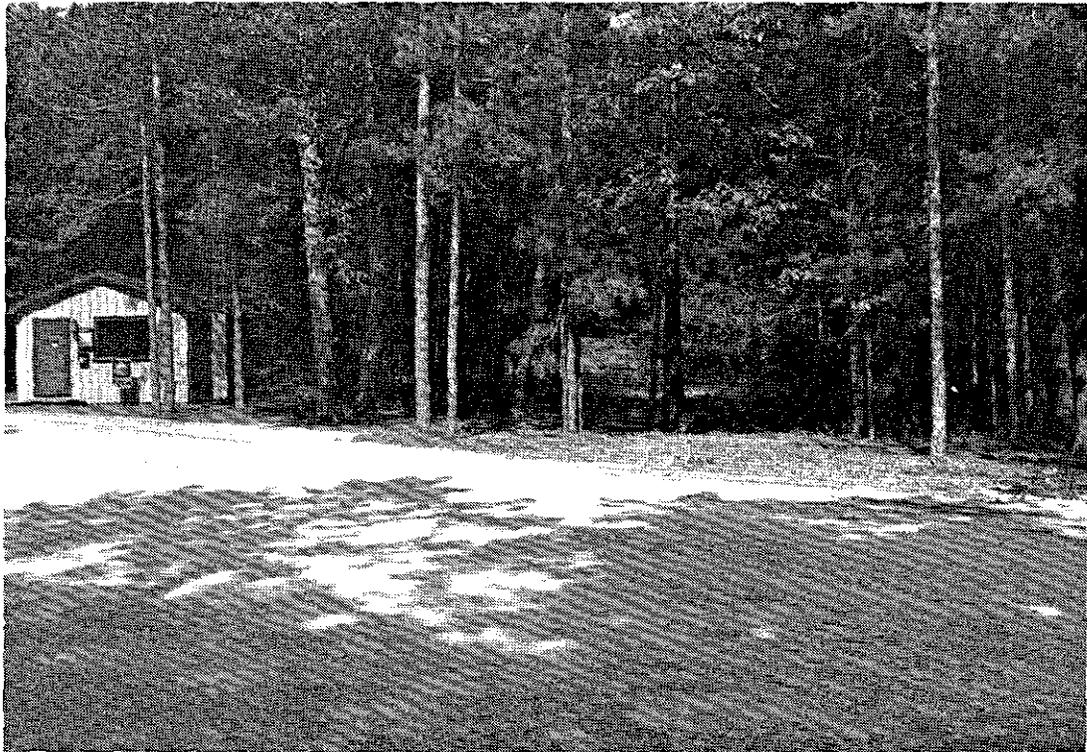
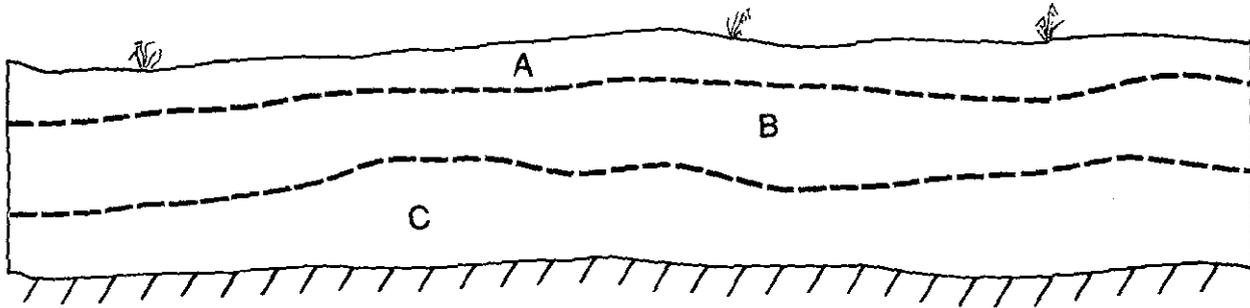


Figure 17. Area 4, view to east.

N 395  
W 414

N 393  
W 414

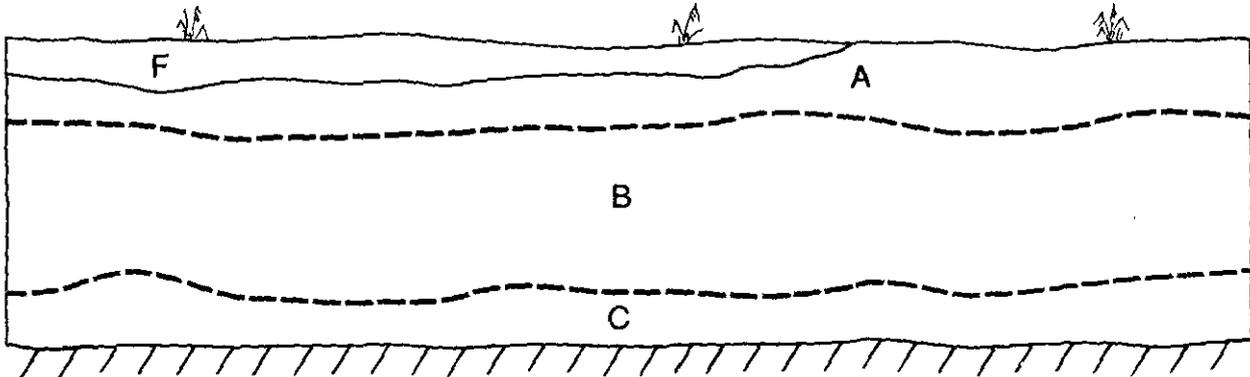


EAST WALL PROFILE

Figure 19. Typical soil profile.

N 267  
W 363

N 267  
W 365



SOUTH WALL PROFILE

- A - Humus Zone, (10YR2/1) Black
- B - Sand, (10YR6/2) Light Brownish Gray
- C - Sand, (10YR5/4) Yellowish Brown
- F - Clean Modern Fill, (10YR6/4) Light Yellowish Brown

Figure 20. Typical soil profile with recent fill zone.

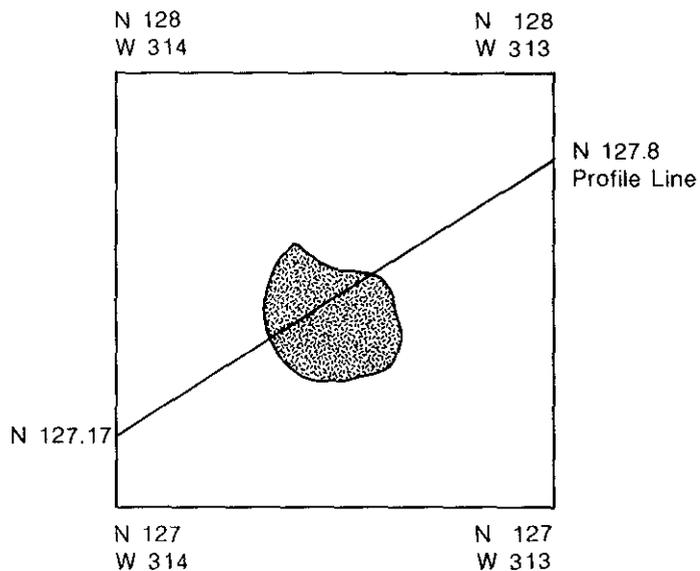
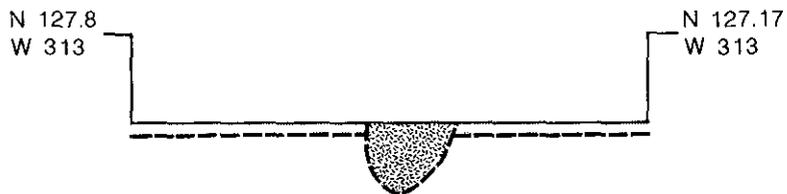


Figure 22. Feature 13, plan view.



- Grading Interface
- Brownish Gray Sand
- ▨ Gray/Black Fill With Abundant Charcoal

Figure 23. Feature 13, profile.

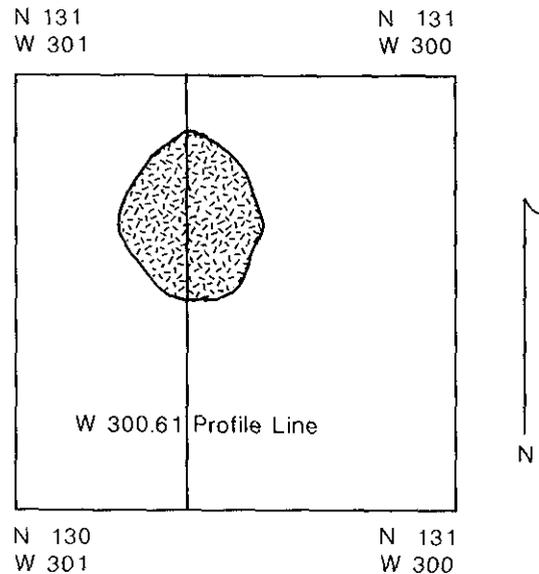
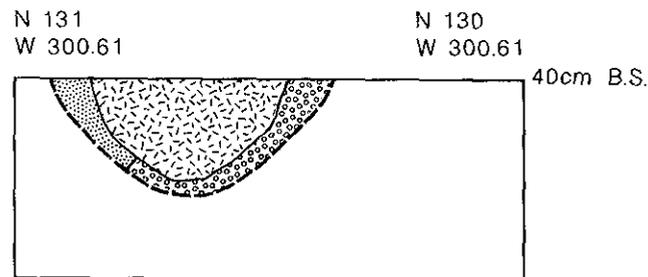


Figure 24. Feature 14, plan view.



- ▨ 10YR5/4 Fine Silty Sand
- ▩ 10YR6/2 Fine Silty Sand
- ▨ 10YR5/1 Fine Silty Sand With Abundant Charcoal

Figure 25. Feature 14, profile.

N 136  
W 304

N 136  
W 302

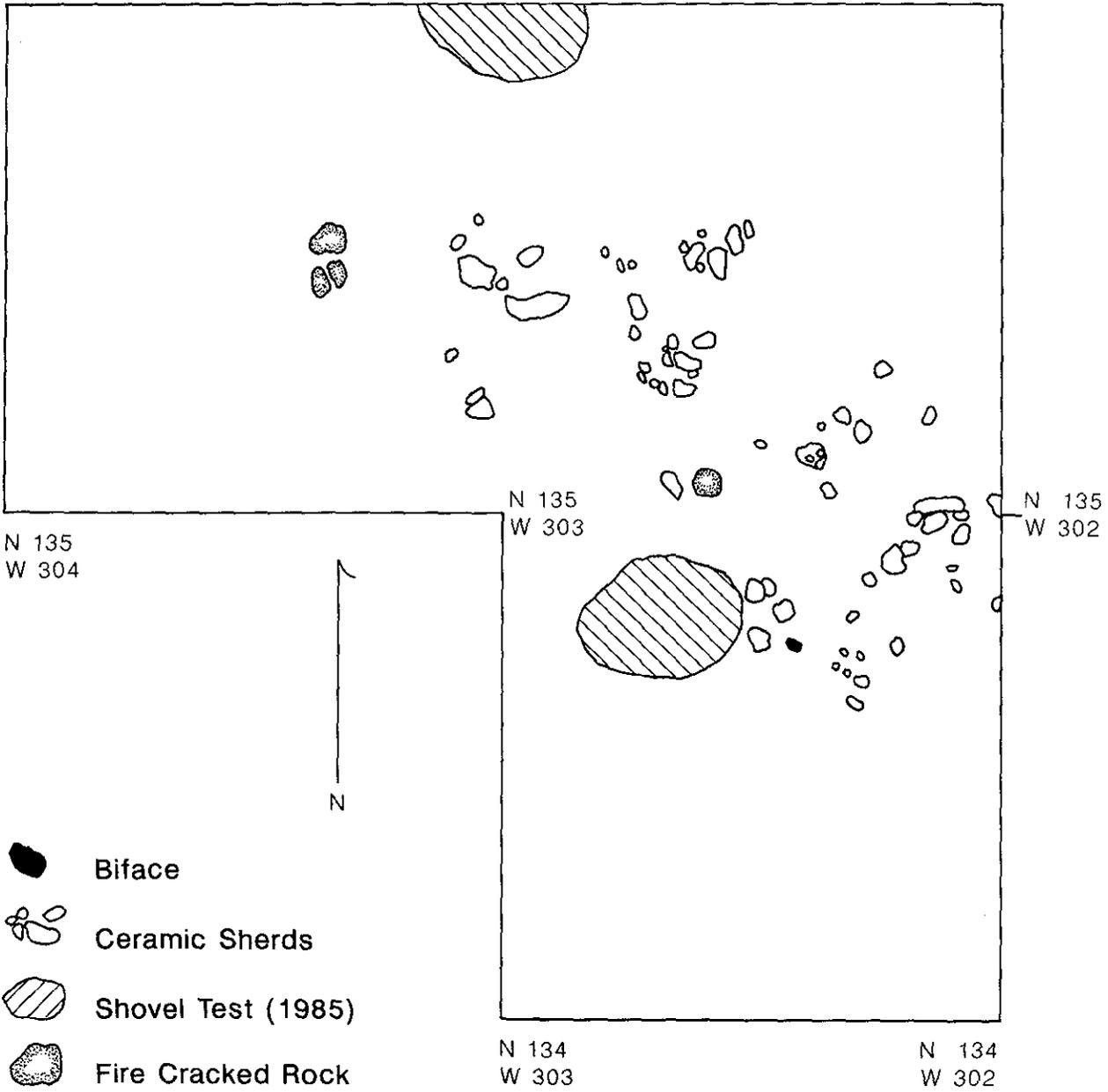


Figure 27. Feature 12, plan view.

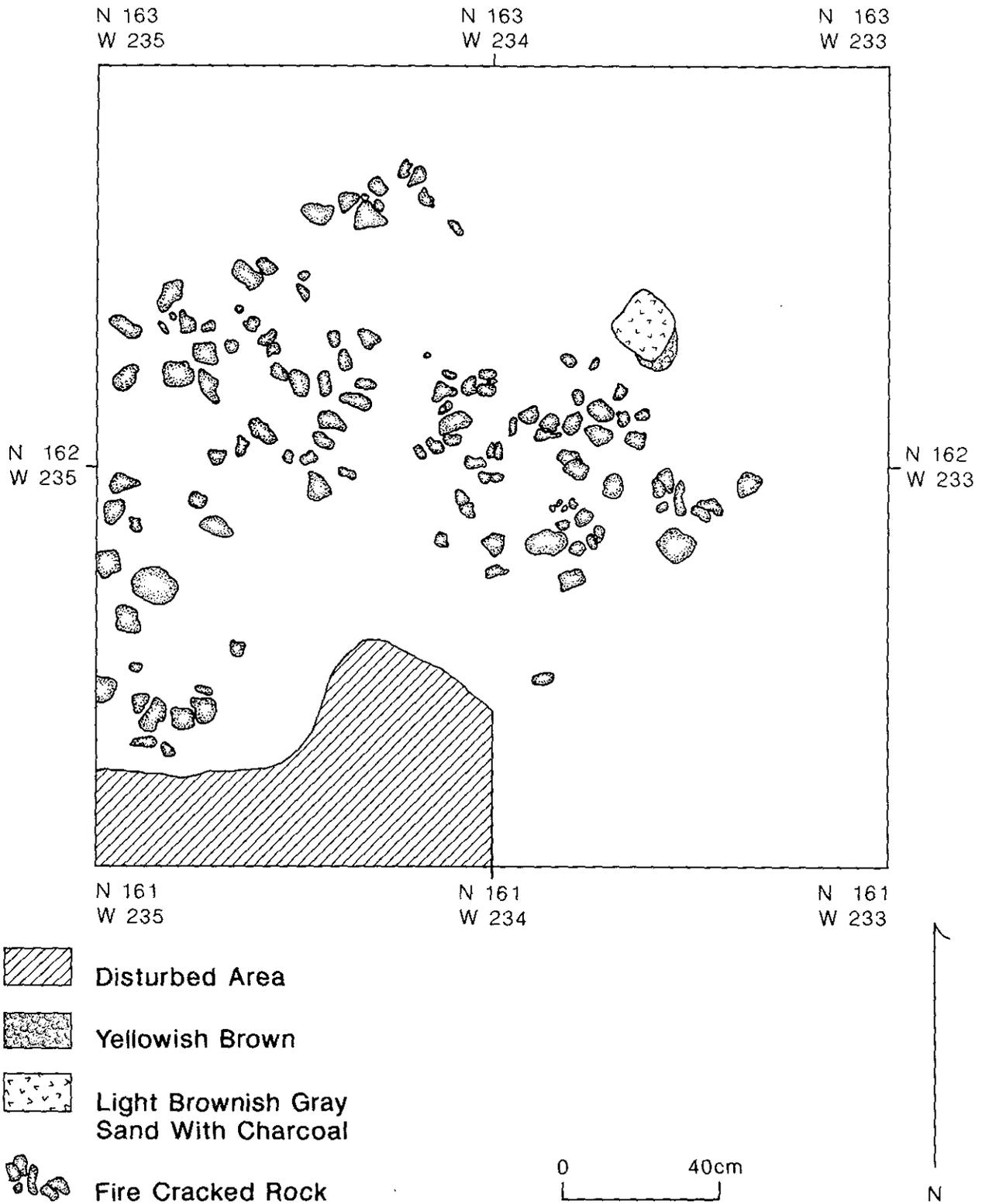


Figure 30. Feature 25, plan view.

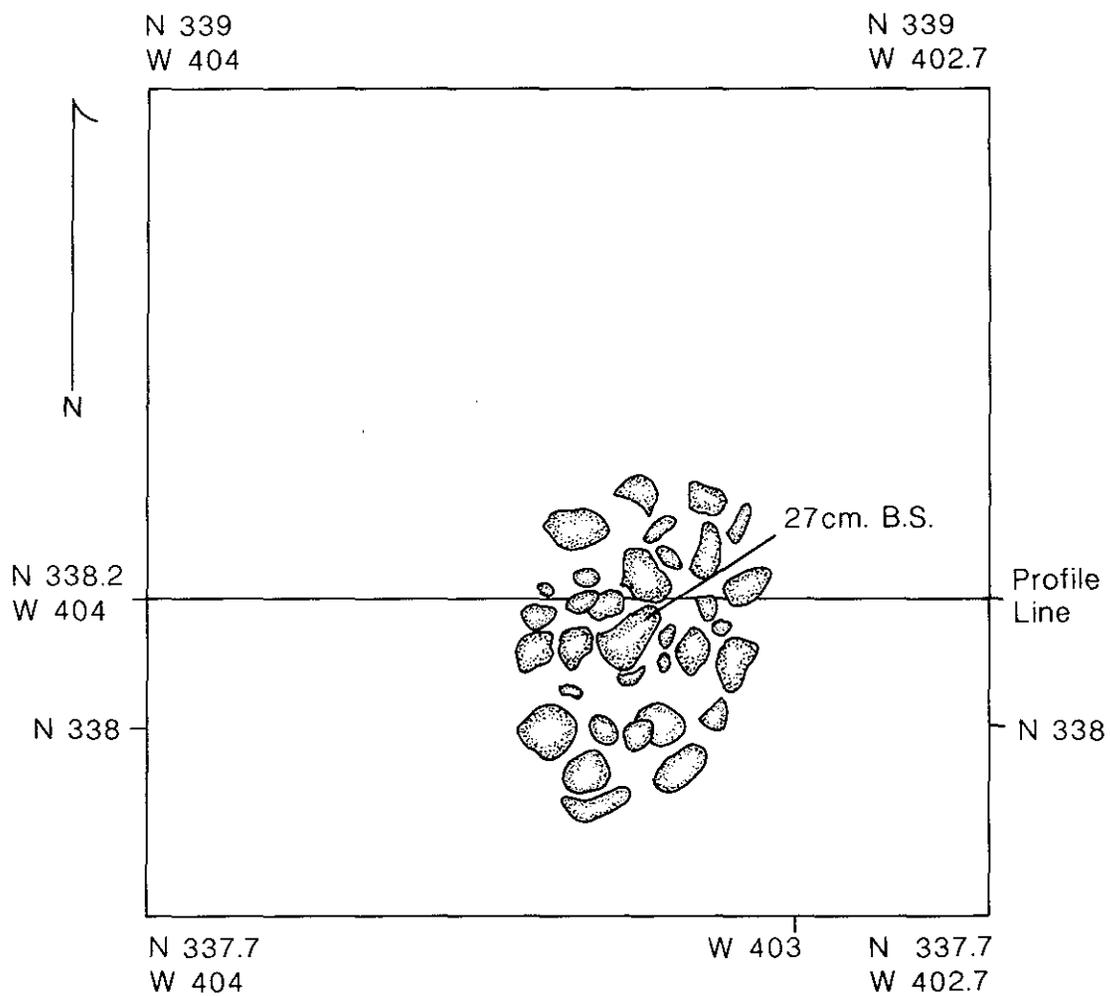


Figure 32. Feature 1, plan view.

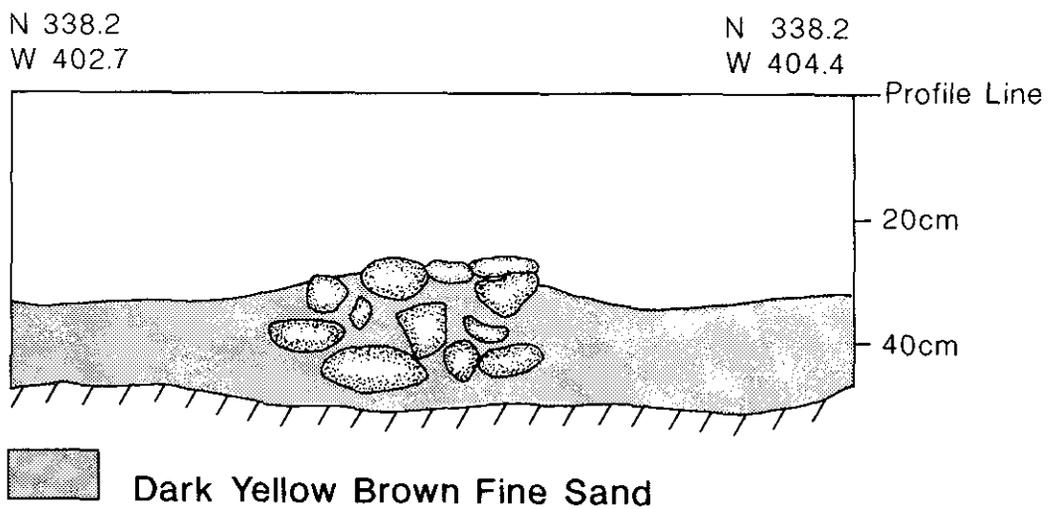
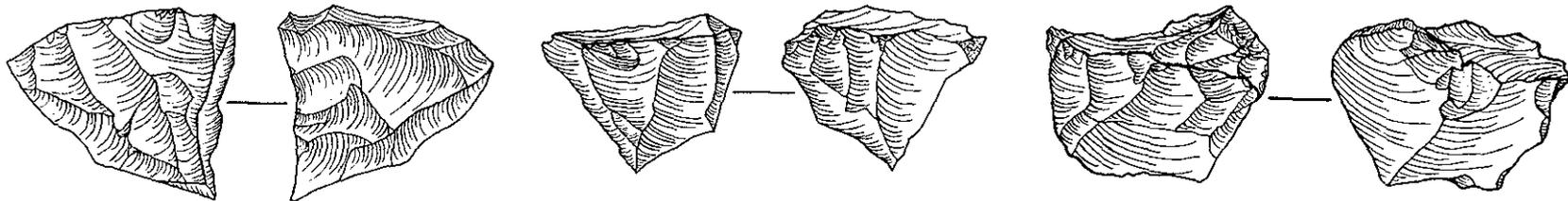
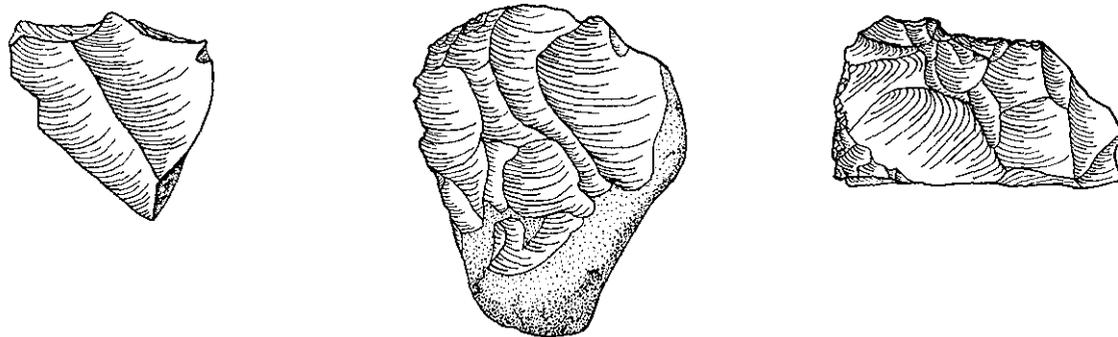


Figure 33. Feature 1, profile.

Prepared



Amorphous



Bipolar

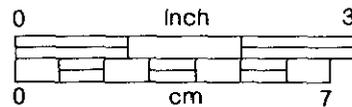
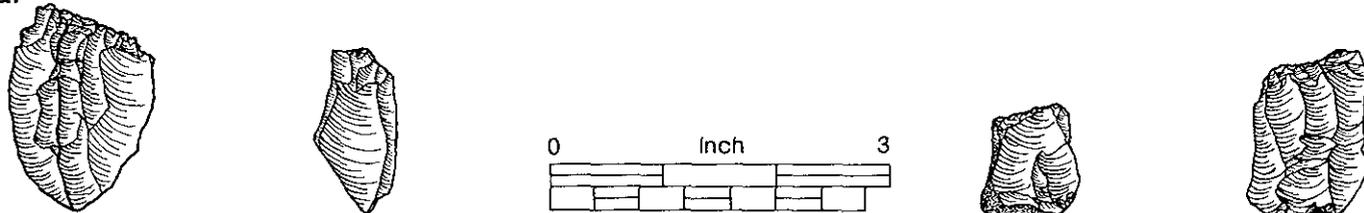
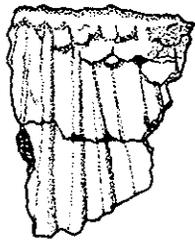


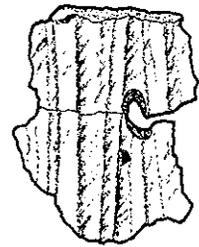
Figure 35. Cores.



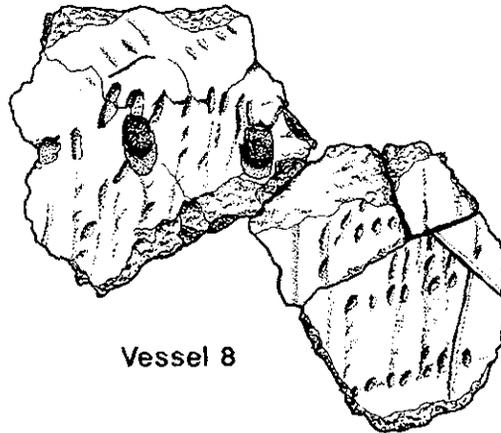
Vessel 6



Vessel 7



Vessel 4



Vessel 8

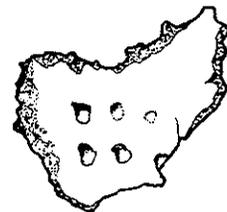
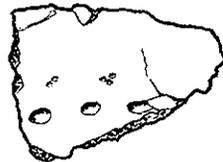
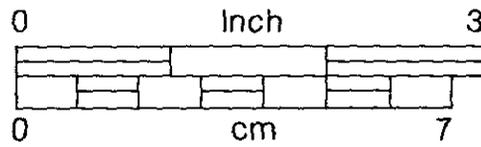


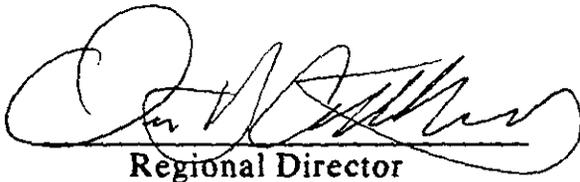
Figure 37. Ceramic sherds.

## REPORT CERTIFICATION

I certify that "Archeological Excavations at the Platte River  
Campground Site (20BZ16), Sleeping Bear Dunes National Lakeshore,  
1987", by Jeffrey J. Richner

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has been reviewed against the criteria contained in 43 CFR Part 7(a)(1) and upon  
recommendation of the Regional Archeologist has been classified as  
available.



Regional Director

8/27/91

Date

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### Classification Key Words:

**"Available"**--Making the report available to the public meets the criteria of 43 CFR 7.18(a)(1).

**"Available (deletions)"**--Making the report available with selected information on site locations and/or site characteristics deleted meets the criteria of 43 CFR 7.18 (a)(1). A list of pages, maps, paragraphs, etc. that must be deleted for each report in this category is attached.

**"Not Available"**--Making the report available does not meet the criteria of 43 CFR (a)(1).